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ATROPINE AND ESERINE IN OPHTHALMIC THERAPEUTICS.

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In a physiological sense atropine and eserine are synonymous with the terms mydriatic and myotic. Each is a representative of the class to which it belongs. Duboisine is a more powerful mydriatic than atropine, while pilocarpine is a greater irritant and a less powerful myotic than eserine. A few cases that have come to my notice recently, forcibly illustrating the misuse, or I might say the abuse, of these valuable remedial agents furnish me material as well as occasion for inviting the attention of the profession to this seemingly threadbare subject. The cases which I desire more especially to signalize at present were victims of the misapplied use of atropine. Some of them had been rendered hopelessly blind by a single drop of a solution of the drug. While it is perhaps impossible, in hundreds of cases, to show that any possible harm has resulted from the empirical use or administration of very many medicinal agents, it is quite different in the use of atropine as a mydriatic.

In order to avoid almost or quite criminal mistakes in the application of this agent to diseases of the eye, it is absolutely indispensable that it be employed scientifically. The same may be said of eserine, though mistakes with it occur less often only from the fact that a myotic in ophthalmic practice is less frequently demanded than a mydriatic. It is by no means its inability to do harm when misapplied. To illustrate my meaning better and to establish some definite data founded upon scientific investigation for the rational application of these agents which are so potent for good or evil, it becomes essential to look into certain diseased conditions of the eye which decidedly forbid or demand the application of one or the other of these drugs. It is the absence of rational investigation that has led the way to much empiricism in the use especially of mydriatics. The conditions that contra-indicate their use are abundantly found in glaucoma. I do not call to mind any disease in the whole category of human ills concerning which there have been advanced so many vague speculations and meaningless theories. Its very name signifies ignorance in regard to the pathology of the disease it represents. But I have neither time nor inclination to quarrel with its etymological signification. Its long and intimate association with this fearful disease has clothed it with a meaning that perhaps entitles it to some respect and consideration.

Before dropping a solution of atropine into the eye, examine carefully the intra-ocular tension. If this be above the normal, and the iris be free of inflammation, withhold the atropine until a further investigation is made. Increased intra-ocular tension unattended by other objective manifestations of disease can safely be taken as a key-note to glaucoma, in so far at least as the use of atropine is concerned. For a better comprehension of the manner by which atropine energizes the glaucomatous process it becomes necessary to note the changes that take place within the eyeball at the very beginning of intra-ocular tension. This has been a fruitful subject of speculation. So fruitful, indeed, has it been that to canvass the various theories that have from time to time been advocated concerning it would fill a volume of no mean dimensions. It was formerly supposed to be the result of a hyper-secretion. Even von Gräfe, whose brilliant acquisitions in the field of ophthalmology have earned for him an endless fame, entertained this erroneous view, and basing it upon the supposition that the iris furnished the superabundant secretion, did the iridectomy with the view of diminishing its secreting surface. Thus did false reasoning stumble upon the remedy which is employed to-day as the most successful means of combating this fearful disease. Von Gräfe was, however, one of the greatest pioneers in the field of ophthalmology. He had not the advantages of the present. He did not work with a light and strength borrowed from the past; hence the work he did was no measure of his capabilities.

The increased intra-ocular secretion is only one of the sequelæ of glaucoma, and the increased intra-ocular tension is in the beginning only the physical sequence of the retention of a part or all of the normal intra-ocular secretion. In the posterior chamber the normal secretion is furnished by the ciliary bodies for the nourishment of the lens and its capsule. After it has accomplished its purpose in the posterior chamber it passes through the pupillary opening into the anterior chamber and mingles with the fluid in this chamber which is secreted by the membrane of Decemet. When its function here has been performed it is eliminated by the organs of elimination and taken up by the general circulation.

Thus the equilibrium is maintained between secretion and elimination. The eliminating apparatus is found chiefly in the anterior chamber at the point where the periphery of the cornea and the base of the iris seem to meet. This is composed of minute infiltration channels that are lined with endothelial cells, and communicate with the spaces of Fontana in the base of the iris. These in turn communicate with Schlem's canal, which passes around the eyeball in the sclerotic near the sclero-corneal junction, and empties in the anterior ciliary veins. When, therefore, the organs of elimination become diseased and fail to do their duty, the first result is increased tension, which is the first symptom of glaucoma. All the other symptoms of this disease can be reasonably accounted for by taking the disease of elimination as the starting point. Hyper-secretion is only the pathological sequence of diseased and deficient elimination. When the intra ocular secretion is retained beyond the period of its utility it becomes disorganized, and furnishes a fruitful source of irritation and disease not only to the organs it was designed to nourish, but to all others with which it comes in contact. The consequent result of this is increased secretion. Hence the increased tension which had its origin in defective elimination is rapidly multiplied until it cuts off the circulation from the retina and optic nerve, which, together with the constant pressure maintained on these parts, produces atrophic changes which result sooner or later in the complete destruction of vision. From this it is evident that the retention of the worn-out intra-ocular secretion is responsible directly or indirectly for all the intra-ocular changes that take place in glaucoma, and that this disease is, properly speaking, a disease of elimination.

This hurried and imperfect explanation of the glaucomatous process clears the way to a better comprehension of the deleterious action of atropine and of the prophylactic influence of eserine in this disease. In other words, it enables one to discern more clearly how atropine may increase intra-ocular tension and how eserine may diminish it. Atropine being a pupil dilator, forces the iris back into the angle of the anterior chamber, which is occupied by those minute channels which perform such an important part in the process of elimination. It causes the iris to act like a valve in closing them, thus destroying the equilibrium between elimination and secretion. It favors the accumulation of the latter and rapidly increases the intra-ocular tension. I have, in one or two instances, known it to increase the tension so rapidly and violently as completely to destroy an eye in a few hours. It was so rapid and violent that it left no opportunity for operative interference, and left not a vestige of vision. Thus atropine not only accelerates the action of glaucoma, but may rapidly develop it in an eye verging upon this disease, or having only a slight predisposition to it. Eserine, being a pupil-contractor, pulls the iris away from the angle of the anterior chamber, and thus assists in freeing the obstructed organs of elimination. It is not claimed for eserine that it is capable of curing glaucoma when fully developed, for the iris under these circumstances may be widely dilated, pushed forward against the posterior surface of the cornea, and deprived perhaps of its contractile powers by the destructive action of the worn-out and retained secretion. So long, however, as the contractile power of the iris remains, eserine may prove invaluable by stimulating its contraction, and by this means breaking up the little bands of adhesion that may have formed in and about the drainage passages in the angle of the anterior chamber. The value of eserine is best demonstrated in an eye that is verging upon an attack of glaucoma. It may cure the predisposing tendency to this fearful disease. In other words, if timely employed it may tide it over altogether.

An eye is predisposed to glaucoma when the drainage channels are taxed to their utmost capacity to maintain under ordinary circumstances the equilibrium between secretion and elimination. When, however, by hypermetropia, injury, neuralgia, or sudden fright, the secretion is rapidly increased and thereby the drainage apparatus becomes further embarrassed by compression, the increased intra-ocular tension must be the physical result which, if permitted to continue, will be rapidly followed by all the other symptoms of glaucoma. Eserine, if timely employed in such a case, may furnish complete relief by contracting the circular fibers of the iris and drawing the bulk of it away from the angle of the anterior chamber, and thus liberating the compressed drainage apparatus, while the use of atropine must produce a diametrically opposite result by dilating the iris and tucking it back, as it were, into the already narrowed angle of the anterior chamber, and thus further obstructing the drainage channels.

There have been many conflicting statements in regard to the action of atropine. Some have even asserted that it is powerless to diminish intra-ocular tension, and in their eagerness to prove their assertions at all hazards, have made a shameful exhibition of ignorance by citing its action in glaucoma. This is only a repetition of the old story of "Hamlet with Hamlet left out." In a healthy eye with a full sized anterior chamber and a good drainage apparatus, atropine diminishes the volume of the healthy circulation. The physiological action of a drug may be as different from its therapeutical as disease is from health. It is the former action, however, that frequently furnishes rational data for its application in disease. In iritis there may also be increased intra-ocular tension as the result of a swollen iris, and an increase of the intra-ocular circulation. In tension arising from this cause atropine is indispensable. Increased tension in iritis is by no means constant, yet atropine is urgently demanded. It diminishes the tension in the same manner as it lowers the normal tension of a healthy eye. It relaxes the iris, diminishes the caliber of the vessels, and favors the absorption of the products of inflammation. It places the muscle in a state of physiological rest, which is the first indication to be met, if possible, in every inflamed organ or tissue. It is to the ophthalmic surgeon what splints and bandages are to the general surgeon. It is the great ocular sedative. It is as indispensable to the ophthalmic practitioner as opium

and its preparations are to the general practitioner. The more useful is a remedial agent the greater is the tendency to its abuse. To avoid this evil a remedy should not be used empirically, but rather as a result of scientific investigation in so far as it is practicable.

Eserine in iritis would be almost as calamitous as atropine in glaucoma, by contracting the pupil, increasing the engorgement of the vessels and rendering the products of inflammation more profuse. Eserine, however, is often serviceable when there is a perforating ulcer in the periphery of the cornea, by contracting the iris and holding it away from the perforation, and thus, perhaps, preventing an anterior synechia. It has also been advantageously employed in retinitis pigmentosa. In this disease the periphery of the visual field is imperfect, and it is difficult for the patient to draw the line of demarcation between the perfect and the imperfect part of the field, and vision consequently becomes confused and indistinct. Eserine here contracts the pupil and cuts off the imperfect part of the visual field, which obtains for the patient a better definition of objects by permitting the use only of the central part of the field, in which there may be good sharpness of vision. Since this effect can readily be obtained by a mechanical device, I think its use for this purpose is very questionable. I have only time and space to observe that atropine is frequently indispensable in correcting errors of refraction by relaxing the spasm of accommodation. Since eserine and atropine are so potent for good or evil, it will be useful to have some well formulated ideas about their application. For this purpose I will summarize as briefly as possible, first, the various effects of atropine on the healthy eye. It lessens intra-ocular tension in an eye that is healthy and normally constructed. By normal construction I mean an eye that is emmetropic and has a full-sized anterior chamber.

In such an eye the atropine lessens intra-ocular tension by diminishing the calibre and contents of internal vessels and checking the secretion of the ciliary bodies. It lessens the tension in iritis by contracting the radial fibres of the iris, which in turn contract the over-distended and engorged blood-vessels, thus diminishing the bulk of the iris and the ciliary bodies. It checks the inflammatory exudation and favors its absorption. It also diminishes the cell proliferation and the transmigration of white corpuscles, and by contracting the iris it breaks up synechiæ that may have been formed, and reëstablishes a free communication between the chambers, allowing the secretion to reach the organs of elimination.

Atropine increases intra-ocular tension when there is a shallow anterior chamber by dilating the iris and tucking it back into the angle of the anterior chamber, and compressing the channels of elimination. In serous iritis its action is feeble, changeable and unreliable. Eserine diminishes intra-ocular tension when the anterior chamber is shallow, the iris sluggish and partially dilated, with its anterior surface resting perhaps against the posterior surface of the cornea, by contracting the circular fibres of the iris and drawing it away from the angle of the anterior chamber and freeing the eliminating channels, and thus reëstablishing the equilibrium between secretion and elimination. In serous iritis the anterior chamber is deepened by the iris being somewhat dilated and pressed backwards against the lens capsule. Here eserine is rather uncertain, yet it may be safely employed with the view of breaking up any little adhesions that may have formed about the drainage channels. Again, eserine increases intra-ocular tension temporarily in a healthy eye by increasing the quantity of the circulation in the iris and the ciliary bodies, which in turn increases their secretion. For a similar reason it increases the tension in iritis, and therefore augments the products of inflammation and favors adhesions of the iris to the cornea or the lens capsule. Therefore, I reiterate, atropine in glaucoma hastens the destruction of the eye, and in an eye verging upon glaucoma may rapidly develop the disease in the most violent form. Eserine may prevent the occurrence of glaucoma when an eye is predisposed to the disease and mitigate the symptoms of a fully developed case, and as it were postpone the destruction of the organ till an iridectomy can be done for its relief. In iritis atropine is absolutely indispensable and eserine may destroy the organ in a very short space of time. Hence, it is as important to know when to withhold these remedies as it is to know when to employ them. I am free to admit that the indications for their use are sometimes surrounded with perplexities and doubts.

> "Our doubts are traitors,
> And make us lose the good we oft might win
> By fearing to attempt."

Pliny says: "Never do anything concerning the rectitude of which you have a doubt." The attempt to decide certain obscure cases extemporaneously and hastily has resulted many times in the loss of the patient's vision and the physician's reputation. To rid this important subject as much as possible of the doubts and perplexities that occasionally surround it, I will classify certain prominent objective symptoms which should always be carefully reviewed before dropping into an eye either a solution of atropine or eserine:

In glaucoma the circumcorneal injection is well pronounced and has a decided venous hue. The eye presents a dusky, staring appearance. The entire surface of the cornea is steamy and looks much like ground glass. The anterior chamber is very shallow, the aqueous humor, from the diminished calibre of the chambers, appears scanty. The pupil is widely dilated and ovoid in form. The iris appears thin, dull, stationary, its fibres obliterated and its surface bulged forwards till it nearly or quite touches the posterior surface of the cornea. Observing the same order of symptoms in serous iritis, the circumcorneal injection is rather indistinct and not so well-marked as in glaucoma, and the tint is more delicate, the haziness of the cornea is not so uniform, and the lower segment of it on its inner surface is irregularly occupied with small white dots more or less numerous in proportion to the severity of the attack. The anterior chamber is deep and large mostly at the expense of the posterior chamber. The aqueous humor

is abundant and more or less turbid. The iris presents a sullied, dirty appearance, though not so lustreless as in glaucoma. Its fibrillar structure is better preserved. The pupil is dilated and round, while in glaucoma it is ovoid in form.

In iritis the circumcorneal injection presents a moderately well-marked, red color, due to arterial as well as venous injection. The cornea is unaffected. The anterior chamber is shallower than normal, caused by the thickened condition of the iris. The aqueous humor is more or less turbid in consequence of the effused products of inflammation. The pupil is somewhat contracted, irregular, and in severe cases adherent posteriorly or anteriorly. The iris is thick and swollen, discolored and somewhat nodular.

Such are the prominent objective symptoms that may assist in doubtful cases to differentiate between glaucoma, iritis and serous iritis. Let the watchword be "atropine in iritis and eserine in glaucoma."

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THE MECHANISM OF INDIRECT FRACTURES OF THE SKULL.

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(*Continued from page 342.*)

ANATOMICAL PECULIARITIES OF THE SKULL.

Having now briefly considered the elastic properties of the skull, let us next study its anatomical peculiarities, which, as I have already pointed out, may be expected to modify the results which might be expected if the shape of the skull were regular and its thickness uniform. These pecularities must be given due consideration if we would avoid the error of applying too rigorously the bursting theory; at the same time they must not be over-estimated. This was the error of Félizet, who was right in attaching great importance to the architectonic conditions of the skull, but who was mistaken in supposing that his buttresses and centre of resistance would stand firm against all or most fractures. So Aran, before him, was right in supposing that fractures starting in one fossa of the skull would often be limited to that fossa; but he erred in supposing this could be stated as a general law. Both of these theories depended upon what we may call the accidents of fractures of the skull; the essential, I believe—and the future may show that this view may be applied too rigorously—is to be found in the elastic properties of the skull, as revealed not only by the experiments of von Bruns and of his German followers, but also by those of Aran and of Félizet themselves, and by the investigations of others before their time, to whom allusion has already been made in the historical sketch at the beginning of this paper. The thinnest portions of the various bones of the skull are as follows:

In the frontal bone. The walls of the frontal sinuses; the orbital plates; the temporal portions; and sometimes on both sides of the crest for the attachment of the falx cerebri.

In the ethmoid bone. The horizontal plate. (The other parts of the bone may be regarded as outside of the true cranial case.)

In the sphenoid bone. The orbital portion of the greater wings, and the walls of the sphenoidal sinuses. The basilar portion of this bone has a deceptive appearance of strength, on account of its thickness; but on section it will be seen to be of such open cancellated structure that it is not surprising to find that it is very often fractured.

In the parietal bones. The lower border, just above the parieto-squamosal suture, and both of the inferior angles.

In the occipital bone. The floor of the cerebellar fossæ; and to a less extent the floor of the posterior cerebral fossæ.

In the temporal bones. I take these bones last because they present some extremely interesting anatomical pecularities, the importance of which I have not found dwelt upon as I think it ought to be. The thinness of the squamous plates is too familiar to need more than mention. But the temporal bone is also often very thin over the cotyloid depression for the head of the inferior maxilla. The mastoid portion is also sometimes occupied by such large open spaces as materially to weaken its walls. The petrous portion does not, on section, present everywhere that solid and rocky appearance to which it owes its name, and which it only partly deserves. The roof of the external auditory meatus is sometimes very thin, in a line parallel to and anterior to the superior ridge of the bone. The floor of this canal is also comparatively thin. The plate of vitreous which covers the anterior inclined plane of the bone is often a mere shell over the promontory above the inferior semicircular canal, and further back, in front of the groove for the superior petrosal sinus, it overlies a mass of honeycombed cancellated tissue which communicates with the large cells of the mastoid process. These facts explain the many fractures which are found to run parallel to the crest of this bone, and which have often been wondered at. In like manner the curious course which a fracture sometimes takes at right angles to the main axis of the petrous bone may be understood when we study the channels and excavations belonging to the middle and internal ear, the internal auditory meatus, the carotid canal, the groove for the inferior petrosal sinus, and the jugular foramen.

These are some of the weak points of the bones of the skull. Others might be mentioned; as for example, the antero-lateral rim of the foramen magnum, which, in some cases, is very porous, and far from so strong as its thickness would indicate. It will be noticed that all of these thin parts of the skull lie in or near the base, and clinical observation shows that they are very frequently the seat of fracture. There are a few other anatomical pecularities of the skull to which I would like to call your attention before I leave a part of our subject which might well occupy much more time than we can spare it. First, in regard to the posterior clinoid processes. It was long a matter entirely unexplained that violence done to the skull was followed by no fracture, except one breaking off the posterior clinoid processes of the

sphenoid bone. But the explanation is easy enough if we accept the "bursting theory," and recognize the fact that the tentorium cerebelli is attached in front to these processes, and that when the long diameter of the skull is increased the tense tentorium holds back with an unyielding strain and tears these processes from their attachments to the rest of the bone. In this we have both a full explanation of the mechanism of these fractures and a beautiful confirmation of the "bursting theory" of indirect fractures of the skull.

Again, I may call attention to the peculiar conditions of the basi-sphenoid and petrous bones. These bones are never, I believe, united by bony union or close-fitting dentations, like the other bones of the skull. Their adjacent surfaces are simply applied against each other and united by a membranous or ligamentous band. The plane in which these bones articulate is such that the basi-sphenoid is placed like a wedge between the apices of the two petrous bones. As a consequence, any force, like a blow on the vertex driving the cranium down upon the spinal column, or a fall upon the buttocks or feet, driving the spinal column up against the cranium, will have the effect of forcing the wedge-shaped basi-sphenoid upward and forward between the two rigid petrous bones, with the frequent result of knocking off one or both of the apices of the latter. This form of fracture is another which has excited much surprise and some fanciful explanations; but, in the light of what has just been stated, it seems to me to be quite comprehensible.

Finally, I have been struck by the fact that certain peculiar fractures of the base of the skull seem to have been due to support of a segment of the occipital bone furnished by the inclination upward and outward of the articular surfaces of the atlas, which embrace the condyles of the occipital bone and restrain it from rupture to such an extent that a fissure will pass on both sides of the protected region rather than through it. This form of fracture is illustrated by a beautiful specimen taken from the Mütter Museum of this College.

ARCHITECTONIC PECULIARITIES OF THE SKULL.

I cannot now do more than allude to the general oval shape of the skull, its various curves, arches, and buttresses, the comparatively even shape and homogeneous character of the vault, and the irregular shape and varying thickness and thinness of the base, with its prominences and depressions, its channels and its so-called sinuses. These are too complex to be detailed here, and too familiar to all to make this necessary. But I would call your attention to what Félizet has laid so much stress upon, the reinforcement of certain regions, as at the junction of the greater wings of the sphenoid bone with the frontal and temporal bones, and of the petrous portion of the temporal bones with the parietals; at the ridge for the attachment of the longitudinal and lateral sinuses within the skull and at those for the attachment of muscles at the back of the head, which vary in importance in different individuals. In addition, we may well bear in mind the comparative roundness of the vault and flatness of the base, and the wedge-like insertion of the lower borders of the parietal bones between the bevelled upper edges of the squamous bones, and the projection of the ends of the petrous bones against the basi-sphenoid, of which I have already spoken in detail. For most of the points one may consult the works on general and special anatomy, or, better still, the skull itself. They all must be considered in studying variations from the result to be expected from the application of any given theory in regard to the mechanism of fractures of the skull, although, as I have said, they need not be expected to controvert any law of general applicability.

INFLUENCE OF THE SOFT PARTS AND CONTENTS OF THE SKULL.

This is another portion of the study of fractures of the skull to which more time ought to be devoted than we can spare now. In a general way, it may be said that the external and internal coverings of the skull—the dura mater and the pericranium, with the muscles, fasciæ, and skin—tend not only to deaden vibrations to such an extent that it is hard to know how to understand many expressions of those who have accepted what is known as the "vibration theory," but also to limit to a moderate extent the changes in shape which the skull may undergo, according to the "bursting theory." The action of the muscles must also be considered of importance, as exemplified in such involuntary and spasmodic contractions as prove sufficient of themselves to break other bones, and which may have more effect here than has yet been suspected. Let us imagine, for example, what might be the effect of a spasmodic contraction of the erector mass at the back of the head when a sudden blow comes upon the anterior part of the vertex, tending to flex the head. I wish it were possible to go further into this inviting field of investigation.

As to the contents of the skull, Fabricius ab Aquapendente attributed fractures by counterstroke to the effort of the air, which he supposed the skull to contain, to escape from its cavity. We know better than this, but it does not seem needless to call attention to the fact that the skull is filled with a much more incompressible material than air. In fact, the brain and its membranes, with the surrounding fluid, completely fill the skull with the most incompressible materials of which we have any knowledge. Under the influence of a blow, this material tends to increase the disruptive force, according to the well-known laws of hydrostatics. As a full cask may be burst by a blow, so there can be no doubt the skull may likewise be burst. The statements often made, which affirm or imply that the skull and its contents can be compared to a water-bed, are utterly erroneous. The fluid contained in the cranium, in a state of health, is far too little to justify any such comparison. Besides which, it is contained in a firm, unyielding case; while it is indispensable to a water-bed that its walls shall be soft and yielding. It has also been intimated —and so able a man as Mr. Hilton thought he had demonstrated— that displacement of the cerebro-spinal fluid could be regarded as a protective against

injury when the skull was struck. Mr. Hilton's experiment was not free from an important source of error, and one who studies carefully the anatomical peculiarities of the cerebro-spinal axis must see, I think, that there is only one way for compensatory diminution in the contents of the skull to take place, namely, by displacement of its contained blood through its natural channels. This displacement can and does take place when time is afforded for the process, as in the case of a growing tumor; but the rapidity with which a blow tends to diminish the capacity of the cranium far outstrips the speed with which the blood can escape; so that, as a matter of fact, the skull and its contents may be regarded as the very opposite of a water-bed, and more like a cask filled with fluid which may burst under a sudden increase of the pressure upon the inside of its walls. This fact is established not only by a correct knowledge of the physical conditions of the cerebro-spinal axis, but also by experiments and observations which I cannot stop to mention now.

STUDY OF CASES.

A great difficulty confronts at the outset one who tries to discover in how far the study of actual fractures of the skull will bear out any theory in regard to their mechanism which seems plausible. The difficulty depends upon the difference between the known factors in an experiment and the unknown factors in an accident. It is often impossible in the case of a fracture of the skull, to ascertain exactly the amount and direction of the force, the point to which it was applied, and the conditions of resistance or evasion of the whole cranial box. The consideration should lead to a modest and reserved fitting of what seemed to be facts to any theory. Nevertheless, nothing can be learned by standing still; and we may, if not over-confident, make some advance in knowledge by testing a theory by an observation of what actually takes place. With this object in view I have examined the published accounts of a very large number of cases of fracture of the skull, and I have collected more than a hundred (119) in which the details seem to me to be sufficient to warrant an approximative estimate as to the conditions under which the fracture occurred, and as to the results produced.

CLASS A^1. *Fractures caused by blows on the frontal region.* Of this class I have only two cases. One caused by a kick from a horse above the right eyebrow, causing a direct fracture here, and an indirect meridional and oblique fracture of the parietal bone of the same side. The other case presents a fracture caused by a blow with the handle of a pitchfork, high up on the frontal region. The fracture is in the base, is meridional, and passes from the right orbital plate through the sphenoid bone and the basilar process of the occipital, leaping across the foramen magnum, from the back edge of which start two converging fissures which meet in the cerebellar fossa on the left side, and above the groove for the lateral sinus.

CLASS A^2. *Fractures caused by falls upon the frontal region.* Of these I have thirteen cases. Twelve present meridional fissures; five of them being directly longitudinal, three of these passing directly through the whole basi-sphenoid bone. Seven are oblique; two of them bifurcated, and one passing through the whole basi-sphenoid bone; one passes from the point of impact to the lower part of the ridge for the straight sinus, after having passed across the middle of the petrous bone and encircled the foramen magnum. One shows a ring fracture, in addition to a meridional fracture from the frontal bone to the junction of the petrous with the basi-sphenoid. One is directly opposite to the point struck, is extensive and bifurcated.

CLASS B^1. *Fractures caused by blows on the occipital region.* Of these I have only two cases. One was caused by a spent ball striking the occiput to the left of the middle line, and shows an independent meridional fracture passing alongside of the internal ridge to near the foramen magnum, then crossing the petrous bone, dividing it transversely to its principal axis, and ending in the foramen spinosum. The other case is a specimen from one of Perrin's experiments, in which the skull was thrown on a stone pavement covered with a layer of india-rubber. There is a separation of the coronal suture, and a prolongation of this as a bifurcated fissure in the right squamous bone. This specimen shows a division at right angles to the meridian, which may be due to an unusually weak union in the coronal suture, or to some peculiarity of the experiment. I have included this specimen among my drawings, because it is diametrically opposed to the bursting theory. But I think an experiment which involves throwing a skull detached from the body cannot be considered very reliable in comparison with those in which the skull is fixed.

CLASS B^2. *Fractures caused by falls, striking upon the occipital region.* Of these I have twenty-one cases. All show meridional fractures. Two of these pass directly through the crest for the lodgment of the straight sinus to the foramen magnum. One passes to the foramen magnum near this crest. Two pass through the whole of one side of the occipital bone, and one splits off a piece of the parietal, and separates the lambdoid suture in part. One divides the frontal bone into halves. Six pass round the foramen magnum on one side, three dividing the petrous bone longitudinally and one transversely. One shows a longitudinal fracture passing across the foramen magnum and dividing the basi-sphenoid bone, as well as a partial ring-fracture. In two the fracture passes meridionally round the side of the head. One shows an independent fissure on each side, in the parietal bones.

CLASS B^3. *Fractures due to blows on both the forehead and occiput.* One such case I have found recorded by Herpin, in which there was a succession of bumps on each of these parts. The resulting fracture is a long fissure, passing longitudinally from the internal occipital protuberance to the foramen cæcum, passing round the foramen magnum, very close to it, and dividing the whole of the basi-sphenoid; a beautiful meridional fissure.

CLASS C^1. *Fractures caused by compression in a longitudinal direction: accidental.* Hewitt records two cases of this sort. In the first, a man fell on the back of his head, and a piece of timber fell on his forehead. The fissure is independent, and partly meridional. It divides longitudinally the middle of the horizontal plate of the ethmoid bone and the middle of the body of the sphenoid bone, passing then to the right through the greater wing of this bone, and bifurcating before passing in two fissures on the squamous plate of the temporal bone. In the second, the history is far from clear, but it seems that the fracture was caused by the compression of a cartwheel passing across the forehead. The fracture is meridional and exactly like several in the next class.

CLASS C^2. *Fractures caused by a compression in a longitudinal direction: experimental.* Of these I have nine cases. Six show meridional fissures. One divides the skull from front to back over the vault. Three divides the skull to an equal extent through the base, passing round the foramen magnum. In two there are two independent fissures. In one of these cases one of the two fissures is not meridional. Three of the cases show complicated fissures which may be due more to crushing than to bursting.

CLASS D^1. *Fractures from blows on the parietal region.* Of these I have only four cases. All show meridional fissures. Three pass straight down to the apex of the petrous bone, and one passes also up to the vertex.

CLASS D^2. *Fractures caused by falls striking on the parietal region.* Of these I have fifteen cases, in all of which I think the fractures may be considered meridional. Four pass along the horizontal equator of the skull. Seven are transverse, three crossing the base from side to side, two going half way across, one involving only the ends of the petrous bone, and one passing across the vault at the back part of the parietal bones, and then passing forward to the base. Four are diagonal, two of them passing the sella turcica.

CLASS E^1. *Fractures caused by compression in a transverse*

direction: accidental. Of these I have five cases. In all, the fractures are transverse and meridional. Two pass across the basi-sphenoid bone and upward on both squamous bones. In one both parietal bones are split independently, the fissures passing down through the petrous bone. In one the coronal suture was separated, and a piece broken out of each parietal, beside an independent fracture of the occipital and petrous bones at the base on one side.

CLASS E^2. *Fractures caused by compression in a transverse direction: experimental.* Of these I have five cases. In all the fissures are transverse and meridional. In four the basi-sphenoid is divided transversely, and in three the fissure involves also the temporal bones. In one case the coronal suture is disarticulated.

CLASS F. *Fractures caused by falls striking on the temporo-frontal region.* Of these I have only two cases. In one the fracture is meridional; in the other it is equatorial, and seems to illustrate the shoving of the posterior half of the skull over the anterior half by the impact of the spinal column on the base in an oblique direction.

CLASS G. *Fractures caused by compression in a diagonal direction: experimental.* Of these I have five cases. In four the fissures are meridional, two being quite complicated. In one case there is a separation of the posterior inferior angle of the parietal bone, and the dorsum of the sella turcica is broken off.

CLASS H^1. *Fractures caused by blows on the vertex: accidental.* Of these I have six cases. In all the fractures are meridional; in five they are transverse and in one longitudinal.

CLASS H^2. *Fractures caused by blows on the vertex: experimental.* Of these I have three cases. All of them show beautiful meridional fissures, one transverse and two longitudinal, one of the latter dividing the skull completely into halves.

CLASS H^3. *Fractures caused by falls upon the vertex: accidental.* Of these I have seventeen cases. In all the fissures are meridional and can, I think, be attributed to a burst. In one the front half of the skull is divided longitudinally, and in one the posterior half is similarly divided. In one the fissure divides the skull into halves longitudinally; in two it divides it into halves transversely. In one the basilar artery was found caught in a transverse fissure of the basilar process of the occipital bone.

CLASS J^1. *Fractures caused by falls upon the condyles (transmitted from feet: accidental.* Of these I have only three cases. In two both posterior clinoid processes were broken off—which can be attributed to the lengthening of the antero-posterior diameter of the skull—and there was a transverse fracture of the apex of the petrous bone. In the third case there is only a longitudinal fissure of the horizontal plate of the ethmoid bone on one side.

CLASS J^2. *Fractures caused by blows on the condyles: experimental.* Of these I have four cases. In all of them the dorsum of the sella turcica has been torn off by the elongation of the antero-posterior diameter of the skull. In two cases this is the only fracture. In one case the whole base is also divided transversely, the fissure passing across the basilar process of the occipital bone. In one case there are also three independent fissures, all transverse.

CONCLUSION.

The analysis of these 119 cases shows that 111 present fissures which correspond to what might be expected from an application of the principles of the "bursting theory," and only eight seem to contradict it. This result, which has surprised me by its apparent completeness, seems to establish this theory by the best test which we can apply to it, so that it appears to rest upon a very firm tripod of reasoning, experiment, and clinical observation.

I trust it will not be supposed that, in making so much of the bursting theory in this paper, I have overlooked the fact that there are fractures which cannot be accounted for by it. There are some fractures in which the force applied is so great, and acts in such a manner, that the skull is crushed so as to hide any evidence of the play of its elastic properties, the fracture being of a comminuted sort; and there are others in which, as I have noted in passing, one segment of the skull seems to be shoved over the other by forces of pressure and counter-pressure which require some study before their mode of operation can be understood. In this connection it is of importance to learn in any case the position which the skull has held in relation to the spinal column, or to any body capable of exerting counter-pressure. No less is it important not to overlook the counter-pressure which is caused by the simple *vis inertiæ* of the skull, and its contents.

But it would be impossible to speak of all the influences which may modify the strict application of any one theory in regard to fractures of the skull. I have laid before you all the evidence which I now can in regard to this matter; and I must close with the expression of my own conviction that the supreme law governing the production of indirect fractures, is that which depends upon the fact that the skull is practically a hollow elastic case, approximately oval in shape, and which may be briefly formulated as follows: When a sufficient force is applied to any curvilinear part of the skull, if this part do not give way immediately, the axis of the skull lying in the same line as that of the applied force is shortened; all the axis lying in planes at right angles to this line are correspondingly lengthened, with a proportional lengthening of their circumferences, and separation of their meridians; so that the direct depressing force is converted into an indirect disruptive force acting at right angles to the direction of the former. The effect is to produce a fissure, or fissures, which will have a general meridional direction.

The application of this law is subject to certain modifications due to the anatomical and architectonic peculiarities of the skull, its coverings and contents, and to certain exceptions due to the amount and velocity of the force applied as well as to the coming into play of peculiar counter-forces.

DR. AGNEW remarked: The paper just read is very interesting, and on a very interesting subject. I must say, however, that I cannot agree with Dr. Dulles as to the mode of fracture—the elasticity of the skull is too insignificant. I still hold to the old vibratory theory. I satisfied myself of the correctness of this by experimenting with ivory balls, suspended in such a manner as to touch different parts of the skull and watching the effect on these balls when the cranium was struck. Fractures of the skull, in the vast majority of instances—when the force is concentrated on a very limited surface—occurs at the point of impact. The force which gives rise to fractures at the base is usually a diffused one, and if applied at the vault of the skull travels to the base by the shortest route, the vibrations concentrating or focusing on certain fossæ in nearest relation with the seat of the applied violence.

DR. PACKARD said: It seems to me that there are two points not mentioned by Dr. Dulles which can hardly be left out of the account in considering the subject of these fractures. One is the direction of the bony fibres—the intimate structure of the bones, as distinct from their mere shape. The other is the

momentum of the fracturing force. Some ten years ago I reported a case in which a man was struck by a locomotive moving at such a speed that he was carried along in front of it for a distance of forty feet before he was flung over to the other track, receiving, among other instantly fatal injuries, a fracture which completely separated his skull into two portions, an anterior and a posterior. Between such terrific violence as this and the blows or falls which are the usual causes of fracture of the skull, there are, of course, innumerable gradations, with corresponding influences on the lesions produced.

DR. DULLES said: It would not be possible to prepare a paper of the kind which I have presented this evening in such a way as to meet in advance all the objections which might be raised in regard to it; neither would it be possible in the time at our disposal for disscussion to answer all such objections. I would only say briefly, that all that is claimed for the "bursting theory" is, that it seems to account for a very large number of indirect fractures. Experience alone can determine the reliability of any theory, and while I have become convinced of the correctness of this one, time will decide the matter.

In answer to the objection raised by Dr. Formad, I would like to say that it is not really an objection, but rather supports the "bursting theory." The fractures passing horizontally, of which he speaks, are just as much meridional as though they passed vertically. As I show you on this skull, any line passing round the surface in the shortest direction from pole to pole—that is, from the point of impact to the antipodal point, is meridional, and the iine passing horizontally is as much meridional as any.

Finally, in regard to the case about which Dr. Formad asked a question, I would say that I do not now recall a single instance of the many which I have investigated, in which a stellate fracture was not a direct fracture; and I believe such an appearance is an indication that the fracture was caused by violence applied at that very spot. This violence, of course, may be due to a blow on the point where the fracture appears, or to a fall in which the head strikes some resisting body at this point.

PYOGENIC CYSTS AFTER OPERATION FOR FISTULA IN ANO.

BY GEO. N. MONETTE, M.D.,
OF NEW ORLEANS, LA.

Resultant upon operations performed for fistula in ano, I have had under my observation two cases presenting localized pyogenic cysts. I say cysts, because of the fact that, for a certain length of time, the secretion was not apparent, and when the cystic calibre was exhausted, there would be a flow of pus for several days, until it became encysted again. Since both of these cases were operated upon by incision, I have been constrained to express a preference for the *ligature* in the destruction, curatively, of fistulous canals.

The incised canal, with its continuity severed, is prone to heal too quickly to perfect the destruction of the pyogenic surface of the canal. On the other hand, the ligature, being drawn taut, approximates the internal and external orifices at once, strangulates, and apparently makes a deep fistulous canal seem to be a superficial one. Granulations supply the underlying pyogenic membrane with such rapidity that the same is readily detached, brought or pushed to the surface, and destroyed more completely.

One of the cases I operated upon myself by inci sion, the wound healing, and apparently my patient was cured radically. A cyst was superficially located on the nates, near the outlet of the canal, which had no connection with the rectum, nor was it deep in the muscular structures. It was made manifest to me at once, that the source of this was in a portion of the pyogenic canal not having been completely destroyed by the operation, which is due to no fault of the operator, but to a tenacity of life in the pyogenic membrane forming the fistulous canal, which soon organizes, becomes encysted, and produces pus and develops into a cyst.

The second case was operated upon by another physician (since deceased), with identical complications. I probed the depth of this case, and found that the cavity was one-fourth of an inch only, and of course not having any connection with the rectal canal, nor communicating with any remote pyogenic surface, membrane or canal.

The treatment of such cases is patent: first, we can but destroy the pyogenic surface by cauterization, thereby promoting granulation, filling up the cavity until the continuity of the integument is reestablished.

A CASE OF URINARY UMBILICAL FISTULA THROUGH A PATENT URACHUS.

BY J. H. YARNALL, M.D.,
OF GEORGETOWN, D. C.

Every physician now and then is confronted with anomalous constructions of various parts and organs of the human body, and which are always of more or less interest to the medical student. Especially are these irregularities interesting when the anomaly is striking and rare, and then do they become worthy of record by adding to the curiosities of medical experience.

I was called, on December 10, to see Joseph W., a colored infant about five weeks old, who, as the father reported, "was passing his water through his belly;" and on close inspection such I found was literally the truth; for with every cry and struggle of the child, urine oozed through the umbilicus. The child had been born at full term, and was of good size and well nourished, but since its birth its mother had noticed that it was impossible to keep the child clean and dry, and on closer inspection she observed that water would dribble from the umbilicus, and at times would a large stream be thrown out. All doubt to my mind as to whether the urethra was pervious or no, was soon dissipated by a copious stream *per vias naturales*. It was very obvious from these conditions, that the fibro-muscular ligament passing from the fundus of the bladder to the umbilicus, and known as the urachus, had persisted in its fœtal form

of a duct. The umbilicus itself was slightly hypertrophied and indurated, and also excoriated, as was also the surrounding integument to a less degree. Upon the umbilicus was a small, dark red, conical-shaped tumor, with its apex external, and it was from a small discernible orifice in this apex that the urine was passed. I was able to pass through this opening a small gum catheter, in the direction of the linea alba, and into the bladder.

On questioning the midwife who presided at the birth of this child, she informed me that the cord was larger than usual, and that it appeared to consist of two portions, separated by a web, and that it did not separate readily, and when separation occurred the little conical tumor was left, through which the urine was passed.

The treatment applied was very simple, and the desired result quickly attained. At first pressure was made over the umbilicus by large cork, held in position by a bandage of adhesive plaster; this was left on for three days, and during this time the urine continued to well around the cork. I then applied sulphate of copper thoroughly over the surface of the tumor, and continued the pressure by bandage, and after three more applications of the caustic had the pleasure, two weeks after my first visit, of seeing the urine passed wholly through its proper canal, and the umbilicus resume its normal appearance.

Dr. Guéniot,[1] in a summary of seven cases of patient researches, one of which occurred in his own practice, shows that the treatment of all these cases by pressure and caustics alone, was futile, and in the three in which a cure was obtained, the ligature around and through the tumor was used. Dr. R. G. Cabell,[2] of Virginia, reported a case of this deformity shown him as a curiosity, of a mulatto girl of fifteen years, and he says she "experienced no uneasiness or inconvenience from this unnatural passage to her bladder," for "she could at her pleasure evacuate urine by either channel."

The last case which I have seen recorded was by Dr. Charles B. Waller,[3] of the Rotherham Hospital, Yorkshire, England. The patient was a male child five months old, and through the urachus he was able to pass a No. 8 silver catheter. The treatment pursued was the dissecting out of the urachus, ligating, dividing and dropping the end into the abdominal cavity. After slight febrile disturbance the patient was discharged cured, on the sixteenth day after entering the hospital. Previous to the operation pressure and caustics had been tried without effect. In conclusion, I would state that I report my case simply as a remarkable vagary of nature.

MEDICAL PROGRESS.

URETHAN AND HYPNONE.—Urethan is the æthylic ether of carbaminic acid, and its chemical composition may be represented by the formula $C_3H_7NO_2$. Fortunately, it has no odor and no disagreeable taste. It may be obtained in beautiful white crystals, which are freely soluble in water. Its action on man has been investigated by Jolly, Kobert, and von Jaksch, of Vienna. Von Jaksch's observations were made on twenty patients suffering from various forms of insomnia. His first experiments were with doses of ¼ of a gramme, or about 4 grains, but this was insufficient to produce any distinct hypnotic action. He then increased the dose to nearly 8 grains, and found that this usually sufficed to produce several hours' good sound sleep. In a patient suffering from hemiplegia associated with disease of the mitral valve, whose general condition contra-indicated the employment of morphine or chloral, it answered admirably, giving a good night's rest without any disagreeable after-effects. Another patient, suffering from a painful aortic aneurism with persistent insomnia, was given a dose at 6 P.M., with little or no effect, whilst another dose administered at 11 P.M., gave calm refreshing sleep until 3 the next morning. Dr. von Jaksch made over one hundred observations with the drug, and is enthusiastic in its praise. It proved most successful in simple uncomplicated cases, and was of comparatively little value when the patient suffered from acute pain. He states that it is particularly suitable for administration to children, the absence of disagreeable taste being a very great advantage. A short time since, Dr. Sundby, of Birmingham, recorded two cases of cardiac insomnia treated successfully by two-grain doses of urethan, given at bedtime in solution in water. One of these was a case of aortic and mitral incompetence, with conjestion of the lungs, hæmoptysis, pleural effusion, and œdema of the legs. The patient, as soon as he fell asleep, awoke with a dreadful feeling of suffocation, and for three nights had little or no rest, but subsequently, with the aid of urethan, he slept well and his condition greatly improved. The other case was one of cardiac dilatation, with mitral incompetence, the heart's action being very feeble and irregular. The patient had not slept for many nights, but urethan produced the desired effect, and she soon slept soundly.

DR. A. S. MYRTLE says: Since October, I have been using urethan in a variety of cases with satisfactory results. I have used it in over fifty cases as a sedative and hypnotic, and my experience of its action encourages me to recommend the drug to the readers of the *British Medical Journal*, believing that, in certain cases, it will prove of great value. The cases in which I have prescribed it were of the usual run of every day practice, where a sedative or hypnotic was required; general restlessness, sleeplessness, neuralgia, catarrh, certain forms of skin-affections with great irritation, also rheumatism and gout. Many of my patients had some peculiarity of constitution which prevented the use of opiates of the usual type; and it is in this special class that I think urethan will prove of great value. One gentleman, who had suffered from insomnia for weeks, and who cannot tolerate opium or chloral, took 15 grains at bedtime with the most perfect result. He wrote to me and said, "The sleep caused was the most pleasant and

[1] Bulletin Général de Thérapeutique Médicale et Chirurgicale, Paris, 1872. Article, "Des fistulis urinaires de l'ombilic dues à la persistance de l'ouraque, et du traitment qui leur est applicable."
[2] American Journal of Medical Sciences, 1848.
[3] Medical Bulletin, Philadelphia, December, 1885.

refreshing. I awoke without a headache, with appetite for breakfast, and what was equally agreeable, there was no interruption to any of my functions." Similar testimony has been given by the majority of patients, who have taken full doses to produce sleep. In smaller doses, its action is less marked, still it is decidedly calmative and agreeable, causing no unpleasant effect, such as nausea, flatulence, constipation or headache. It does not effect the nerve-centres of circulation or respiration, but spends itself on the cerebrum. It possesses, therefore, great advantages the older and valuable sedatives, which have certain evil influences, especially in exceptional cases. Given in gout and rheumatism in full doses, alone or in combination, it has the great advantage over morphia of not interfering with the action of the bowels or kidneys; besides, it is not unpleasant to the taste; the only objection to it is its price, although that has been reduced 50 per cent. since I gave my first dose three months ago.

For the other new hypnotic, we have to thank Dr. Dujardin-Beaumetz, who recently submitted to the Académie de Médicine of Paris the results of a series of observations on aceto-phenone, or as it is more commonly called, hypnone. This compound is prepared by the action of chloride of benzoyl on zinc-methyl, or by distilling together a mixture of benzoate and acetate of calcium. It is a colorless mobile liquid, having an odor not unlike oil of bitter almonds or cherry-laurel water. It has a very decided physiological action, for a cubic centimètre injected under the skin of a guinea-pig produced a torpid comatose condition, from which the animal did not recover. The respiration was quickened, the heart-beats became fewer in number, the animal started convulsively, gradually grew colder, and died. To produce sleep, it should be given in doses of from 2 to 16 minims; and, it administered at bedtime, it uniformly produces a well-marked hypnotic action. It may be diluted with alcohol, ether, glycerine, but the best way to give it is in capsules. It communicates to the breath a somewhat disagreeable odor, but its taste may be masked by syrup of orange-flower or oil of sweet almonds. Dr. Dujardin-Beaumetz's observations have been fully confirmed both by Dr. Constantine Paul and by Dr. Huchard.—*British Medical Journal*, February 20 1886.

LEAD POISONING.—DR. SINCLAIR WHITE, the medical officer of health for Sheffield, has recently published an excellent and interesting report on the action of the Sheffield water on the lead communication-pipe and its effects on the health of the community. A number of cases of chronic lead-poisoning occurred during last year amongst persons not engaged in any of the trades in which lead is used, analysis showing that the drinking-water in every case contained a sufficient amount of lead to account for the poisoning. An examination of the water-supply led to the fact becoming known that the water of only some parts of the town contained lead to any appreciable extent. Sheffield derives its water from two distinct sources, with separate systems of distribution; the first is from the hills around Redmires, which is collected in reservoirs near its origin, and and runs in a conduit to a reservoir at Crooke, known as Hadfield Reservoir, whence it is distributed to certain high-lying districts; the other source is from the hills around Strines and Agden, which runs in a conduit to a reservoir known as Godfrey Reservoir, and is thence distributed to the two low-lying parts of the town. The persons who suffered from lead-poisoning resided in the high-lying districts. The Redmires water is collected from moorland, the surface peat varying in thickness from a few inches to several feet, and beneath this are shale and millstone grit of the carboniferous system of rocks; both the peat and the shale contain iron pyrites, and the water was distinctly acid in reaction, the acidity being most intense in the higher portion of the collecting grounds. The Strines and Agden water was not acid. The cause of acidity in the Redmires water was the subject of careful investigation, and it was found possible that this had resulted, firstly, from the action of soft water on the iron pyrites, giving origin to free sulphuric acid; secondly, from ulmic and humic acids, which are caused by the decomposition of vegetable substances; thirdly, from the atmosphere, which contains large quantities of sulphurous acid, the result of the large consumption of coal in the town. Assuming that the first two possible causes had been in force, the impregnation of the Redmires water is explained on the ground that this neighborhood contains iron pyrites, while the water from Strines and Agden, from containing more alumina, which would neutralize the acid, would give less evidence of the presence of free acid. A further analysis of water taken from sources where the water had passed through new and old lead pipes showed the former contained a much larger amount of lead than the latter, the former containing from 0·14 to 0·61 grain per gallon, whereas the latter contained from 0·14 to 0·42 grain per gallon. Again, long pipes led to greater pollution of the water than short ones, and the length of time the water had stood in the pipes was also directly related to the amount of lead contained. The report ends with a statement of the results of filtration: carbon and spongy iron filters removing all traces of lead.—*Lancet*, March 13, 1886.

LEAD-POISONING BY HOUSEHOLD UTENSILS.—The German Parliament has now under consideration a Bill which is intended to regulate the employment of lead in the manufacture of cooking and other domestic utensils, and so to diminish the risk of poisoning by that metal. The provisions of this measure certainly do not err on the side of leniency. They forbid the use of vessels containing more than 10 per cent. of lead in their composition for the above purposes. No alloy with over 1 per cent. may be used in coating iron articles used in cookery. Solder may consist of lead to one-tenth of its amount, but no more. Enamels into which lead enters are treated with equal stringency. The effect of this Bill, if it be passed, will be to obliterate the legal existence of pewter and of soft solder as at present made, since these alloys contain from one-half to one-fourth of their weight of lead. One fact which it brings into

prominence is that lead-poisoning in Germany appears to arise from other causes besides those to which it is commonly attributed in this country. Cases of this kind among ourselves are usually found in the persons of those who are actually engaged in handling lead or its compounds in their daily occupation. Plumbers, painters, glass-blowers, glaziers, potters and enamel-card makers furnish the majority of those who suffer from plumbism. When this disorder appears in the household, new paint in the walls or the lead work of the water service affords a clue to its detection. It is comparatively rare to find in these days that pewter pots or cooking utensils are at fault. This may be because glass is used on the whole far more frequently than pewter in the liquor trade; while in the kitchen those vessels the contents of which are most likely to become contaminated with lead in the solder—such, for example, as preserving pans—are usually made of brass or copper (which is kept well burnished), and present a relatively trifling soldered surface, or are lined with porcelain. The water used in cooking also acts as a protective, since the lime salts contained in it tend to prevent the solution of lead. The proposed German legislation on this subject is very perfect in theory so far as it goes. Possibly it may be called for by the teaching of experience. In this country it would probably be found to be needlessly severe, and would not cover the chief causes of the evil which it is intended to meet. We do not see how it can do this even in Germany, unless measures of equal rigor be adopted to control the use of lead in manufactures and in its other domestic applications. The introduction of these further restrictions might fitly exercise the judgment of our own as well as foreign legislators.—*Lancet*, February 13, 1886.

The Treatment of Old Corneal Opacities.—In the last number of *Archiv für Ophthalmologie*, Dr. Dantziger advocates the treatment of old opacities of the cornea by friction performed daily, and continued for two or three months if necessary. When the opacity is of moderate size, but of considerable density, it is recommended that it should first be scraped away, and the friction, or "massage," commenced as soon as the epithelium has been reformed. The scraping is performed with a Graefe's knife, used in the manner in which one scrapes away a blot with a penknife. Antiseptic precautions are used, and iodoform is applied as a dressing; cocaine produces sufficient anæsthesia. Atropine and warm fomentations are used if the reaction be very great; by the fifth to the eighth day the epithelium has generally been reproduced, and the "massage" is then commenced. A minute piece of Pagenstecher's ointment is introduced, and the upper lid is then moved from side to side over the cornea with the forefinger, with a rapid to-and-fro movement, for about half a minute. Some hyperæmia is produced, which should not last more than a few minutes; if it last as long as half an hour, the treatment must be used cautiously, and may have it to be abandoned. The author gives a detailed account of ten cases, in four of which the friction was preceded by scraping. With the exception of three, all were opacities which had existed in a stationary condition for more than three years, and in all except one (in which the whole cornea presented a greyish opacity) there was a very great improvement in vision, sometimes without any obvious clearing of the cornea. An improvement from $\frac{2}{200}$ to $\frac{20}{30}$ in three months would, perhaps, about represent the average result of the cases, but in some it was much better. Those who know how very intractable these cases are under ordinary treatment, will welcome any method which offers a reasonable prospect of ameliorating their condition; and should these results be borne out by wider experience, a very valuable addition will have been made to the resources of ophthalmic surgery.—*British Medical Journal*, February 20, 1886.

Salicylate of Lithium in Rheumatism.—Vulpian read before the Paris Academy of Medicine recently a paper in which he claimed certain advantages of salicylate of lythium over the salicylate of sodium. We abstract without comment some of the principal points of his paper, as found in the *Deutsche Medizinal Zeitung* of January 14, 1886:

In spite of the acknowledged specific influence which salicylate of sodium exercises over the rheumatic process in general, every practitioner has met cases which proved absolutely refractory to this medication. In some forms of rheumatism, such as the gonorrhœal, in the subcutaneous articular and chronic articular, the sodium salt has little if any power. In these forms the salicylate of lithium has, in the hands of Vulpian, given fair results, and proven by all means superior to the salicylate of sodium. Wherever the fibrous tissues are first and prominently affected, the lithium salt appears to act better. In some chronic cases, in which the sodium salt had been exhibited for a long time without the slightest effect, salicylate of lithium gave relief in ten to fourteen days, removing pain, swelling and functional disturbance. Improvement was also obtained in some very advanced cases marked by semi-anchylosis and deformities. The salt is easily soluble in water, has an agreeable taste, and may be given in doses of 7 grains. The daily ingestion ought not to exceed 1 drachm. The drug is, however, by no means free from unpleasant after-effects, though patients who were treated by both the sodium and the litheum salt gave the latter the preference.—*Therapeutic Gazette*, March 15, 1886.

Nervous Troubles in Slow Mercurial Intoxication.—1. Slow mercurial poisoning gives rise to a certain number of nervous troubles which constitute the greater part of its symptomatology.

2. These nervous troubles can be attributed, in part, to the presence of mercury in the nervous centres, where it has frequently been found, and in part to lesions of the cerebro-spinal system, which have been described by Wising. One of the most curious characteristics of these lesions is the persistence of the axis cylinder in the altered regions. This last condition is found in the lesions of sclerosis in plaques, which, moreover, in its clinical features

shows some analogies with cerebro-spinal hydrargyrosis.

3. The nervous troubles of hydrargyrosis are:

a. Disturbances of motion: trembling analogous to that of sclerosis in plaques; convulsive phenomena of various kinds (cramps, epileptiform attacks, etc.), choreic movements, apoplectiform ictus, paralyses presenting the features of paralysis of cerebral origin.

b. Disturbances of sensibility: anæsthesia presenting the features of anæsthesia of cerebral origin; painful phenomena of which the most constant are the arthralgias and cephalalgias.

c. Disturbances of a psychical nature which are at first excessively emotional: disturbances of sleep, vertigo, and, toward the last, dementia very much resembling senile dementia.

4. In general, these nervous orders persist for a very long time; they may be greatly benefited, but only rarely can an absolute cure be obtained.—Phillipe Maréchal, *Thèse de Paris*, 1885.—*Jour. Cutaneous and Venereal Diseases*, March, 1886.

A Specific for the Treatment of Hernia.—Dr. Doroteo de Armas publishes an article in the *Union Médicale de Caraccas* (*Bull. Gén. de Thér.*, No. 28, 1885), in which he claims that the peasants of Venezuela produce a radical cure of hernia by means of a parasitic plant which grows on the *Bowdichia virgiloides*. The boughs of this parasitic plant are stripped of their leaves, and then scraped with a sharp instrument so as to remove all the inactive portions of the bark; the remainder is then chopped up and mixed with water to form a semi-solid paste. After the lapse of some time an extractive matter separates, which is at first greenish, but then becomes almost black. It is elastic, semi-solid, and capable of being drawn out in long filaments, which stick to the hands, and gradually harden when exposed to the air. The mode of employment is to spread a thick layer of this substance on a piece of linen, and, after having well shaved the skin, to apply it over the hernial tumor, where it is maintained from forty days to two months. Dr. Armas refers to two cases of cure with which he is himself personally acquainted. He believes that this mode of action is on the one side attributable to its contraction, and so renders it analogous in its application to a truss; and he believes, on the other hand, that it exerts special influence over the hernial rings.—*Therapeutic Gazette*, March 15, 1886.

Benzoate of Cocaine.—Dr. A. Bignon considers the benzoate superior to all other salts of cocaine as a local anæsthetic. Benzoic acid is the natural synergist of cocaine, since it is one of the products of its decomposition, but, when combined with it, increases its stability. Moreover, its antiseptic property is an advantage, and the benzoate in solution has a decided odor of the coca leaf. Mention is made of epithelioma of the tongue, who could neither eat, talk, nor sleep without using cocaine. The muriate only enabled him to sleep for an hour at a time, but the benzoate secured four hours of continuous sleep. The experiment was repeated many times and invariably with the same result. He states that, whereas an application of the neutral hydrochlorate caused a painful sensation before anæsthesia was established, nothing of the sort occurred when the benzoate was used. The benzoate may be prepared extemporaneously in solution by using one part of benzoic acid to three parts of cocaine.—*New York Medical Journal Journal* March 13, 1886.

Muriate of Thebaine in some Affections of the Optic Nerve.—Dr. Bono says that thebaine is an excellent myotic, similar to eserine, but producing less spasm and myosis. One drop of a 1–40 solution produces its effect in half an hour, the effect passing off in four or five hours. He believes that thebaine will prove very useful in the following cases:

1. In alcoholic and nicotinic amblyopia.
2. In detachments of the retina.
3. In incipient progressive general paralysis, with limitation of the visual field and atrophy of the optic nerve.
4. In the anæmics and convalescents of grave diseases (typhoid, diabetes, malaria, etc.) with visual troubles.
5. In descending atrophy of the optic nerve.
6. In neuro-retinal affections of syphilitics, use being made at the same time of mercurial frictions, with iodide of potassium internally.—*Nouveaux Remèdes*, March 1, 1886.

Intra-Venous Injections of Iodine.—Dr. Van der Heyden, on the assumption that infection of deep closed tissues is due to bacteria, and that these organisms are especially sensitive to the action of iodine, has used the following mixture as an intravenous injection in certain cases:

Iodine	1 part.
Iodide of sodium	2 parts.
Distilled water	7 "
M.	

The amount for one injection is 10 grammes.

The first injection was made in a case of typhoid fever, in which the temperature was very high. It fell immediately, and did not go up again. In two cases of cholera, at the beginning, the injection produced a favorable effect. In another case, in which the algid period was very pronounced, it was of no avail. In three cases of leprosy there was marked amelioration.—*Nouveaux Remèdes*, March 1, 1886.

Congenital Tuberculosis.—An eight months' fœtus was taken from a cow, the subject of advanced tuberculosis, by Dr. Johne. The placenta and uterus were free from tuberculous lesions, but in the lower lobe of the right lung a nodule the size of a pea was detected containing four caseous centres. The bronchial glands were congested and also tuberculous. The liver contained numerous gray granulations. Microscopically the tubercular structure was confirmed; masses of epithelioid cells with giant corpuscles containing tubercular bacilli were discovered.—*Lancet*, March 6, 1886.

THE
Journal of the American Medical Association.
PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, APRIL 3, 1886.

TUESDAY, MAY 4, 1886.

We have seen in several of our exchanges references to the next meeting of the American Medical Association as to take place on the *second* Tuesday in May, which may deceive some in regard to that meeting. We think the error in date originated in an editorial in the *Courier-Journal*, of St. Louis, several weeks since. The meeting at St. Louis will commence on the first Tuesday, May 4, 1886, as stated in the official notice of the Permanent Secretary. Any of our exchanges which have made the error will confer a favor by making the correction as soon as possible.

CHICAGO AS A CENTRE OF MEDICAL EDUCATION.

Thirty-seven years since, when the writer of this paragraph became a resident of Chicago, there was but one medical college in it, called the Rush Medical College, in honor of Dr. Benjamin Rush, of Revolutionary fame. Its annual lecture term was sixteen weeks, and its class of medical students numbered about 120. At its recent annual Commencement exercises the same college conferred the degree of Doctor of Medicine on 165 students, and its whole class of matriculants was reported to be 410. Beside this college there have been added three other regular colleges, viz.: The Chicago Medical College, which is the Medical Department of the Northwestern University, the Chicago Woman's Hospital Medical College, and the College of Physicians and Surgeons. At the recent annual public Commencements of these institutions the Chicago Medical College reports 120 matriculants and 39 graduates; the Woman's Hospital Medical College 60 matriculants and 17 graduates, and the College of Physicians and Surgeons 165 matriculants and 71 graduates, making a total of 755 matriculants and 292 graduates.

Instead of the original annual term of sixteen weeks, at the present time the regular annual term of instruction is five months in all except the Chicago Medical College and the Woman's College, which require full six months of thoroughly graded instruction each year. Thirty-seven years since there was no organized hospital open for clinical instruction in Chicago, but during the past year the students of the several schools named have had access for systematic clinical instruction to no less than five important public hospitals for the sick, and to not less than three well patronized free dispensaries. The attainment of a fair general education is required of each student before he is admitted to the medical colleges; and during the last eight or ten years the Chicago Medical College has required systematic practical work in the laboratories of chemistry, histology, and pathology as a part of the curriculum for graduation. During the past college term the accommodations in the laboratories of histology and pathology have been sufficient for classes of thirty or more at the microscopes, under the direction of the professors or their demonstrators. At the recent public Commencement of Rush Medical College it was announced that arrangements had been completed for requiring in future of her classes the same practical work in the departments of histology and pathology.

If Chicago does not at this day rank with the first three cities of America in respect to population and commerce, the foregoing facts and figures show that she certainly does as a centre of medical education and scientific progress.

PTOMAINES, LEUCOMAINES AND MICROBES—PUERPERAL SEPTICÆMIA.

At the meeting of the Académié de Médecine, on February 23, a note was read from Mr. Béchamp, of Lille, in which he takes MM. Gautier and Peter to task on two or three points in regard to their recent papers on "Ptomaines and Leucomaines." The reading of the communication was followed by an interesting discussion on the part of MM. Charpentier, Peter, and Verneuil. M. Béchamp's first point is as to a question of priority. So long ago as May, 1871, he delivered a lecture before the Academy in which he said: "The living being, filled with microzymes, bears in itself the essential elements of life, disease, death and total destruction. And that this diversity

in the results does not astonish us, the results are the same. Our cells are constantly destroying themselves by a process of fermentations entirely analogous to those which follow death. One may truly say that we putrefy unceasingly." This language in the light of further knowledge, and in conformity with the microbial theories, he now retracts. "We neither putrefy nor ferment. We are nourished, and what is called fermentation, and putrefaction, is only nutrition in the cellular beings and vibrios."

In the discussion on this subject M. Charpentier called attention to the fact that M. Trèlat had asked the opinion of obstetricians on certain facts concerning puerperal septicæmia, related by M. Le Fort, and interpreted by M. Peter in the sense of auto-infection, or auto-typhysation, to use the favorite expression of the advocate of spontaneous generation. M. Charpentier confined his remarks strictly to a general consideration of puerperal septicæmia, and to certain facts advanced by his colleagues. First, he said, we must consider one fact as absolutely incontrovertible to-day: "Puerperal septicæmia is the manfestation, under multiple forms, of an infection, of an intoxication of the lying-in woman. It is always accompanied by the presence of microbes in the tissues of the woman so affected. This puerperal septicæmia is essentially transmissible, and we may to-day, thanks to antiseptic precautions, not only avoid this transmissibility, but even suppress the disease itself, so to speak. The statistics of Maternities prove this. From 10 to 15 per cent. the mortality has fallen to 1 per cent. in hospitals. It would be nothing, I venture to say, if all the antiseptic precautions were to-day and henceforth rigorously carried out."

But if *all* obstetricians be in accord, French and all others, in recognizing that puerperal septicæmia is the result of an infection, it is easily seen that a series of questions are naturally suggested. 1. Can a lying-in woman produce puerperal septicæmia in herself? Can she spontaneously create this morbid agent, whatever it be, which poisons her? Can she, in a word, produce auto-infection, or, on the contrary, is this septic agent always transmitted, or caused by hetero-infection? 2. Admitting that puerperal septicæmia is always the result of an infectious agent, what is the nature of this agent? What is to be understood by spontaneity in disease? Charpentier does not think it admissible to hold, with Peter and Béchamp, to the spontaneous development of bacteria, bacteria being only the evolution of microzymes. This theory has been completely refuted, within the past two months, by Cornil. Spontaneity is only apparent. From an exclusively clinical point of view we can never know absolutely the exact source of infection. It may be suspected with more or less probability, but can never be demonstrated except by the experimental method. When there is a question of infection, whatever this infection may be, there are always two elements to be considered: the infecting agent, and the soil upon which it is deposited. The soil varies as the woman is in the pregnant or the lying-in state. The pregnant woman offers no soil for the microbe, but in the lying-in woman the conditions are extremely favorable. When a woman, says Charpentier, is delivered without antiseptic pre caution, and contracts a puerperal or septic affection, we can never affirm what is the source of the poison.

Sometimes isolated cases of puerperal septicæmia are seen, which seem to be developed in spite of all precautions. These are often cited as sporadic cases, without direct contagion by the genital organs being shown. Are these cases infected by the uterine wound in spite of everything? Are they examples of auto-infection? These, says Charpentier, are insoluble hypotheses. One fact, however, is certain: septicæmia is of microbial origin. Would M. Peter, who denies the influence of the microbe, neglect antiseptic precautions in the lying-in chamber? He attaches great importance to *soil*, seemingly forgetful that the most enthusiastic microbiologists give it almost the same, if not as great importance. M. Béchamp announces that he will soon make known the true theory of nutrition, and expose the physiological and chemical errors in the expression "vivre anaérobiquement on putrefactivement" of Gautier; errors as prejudicial to science as to medicine. Our readers may therefore look for a continuation of this discussion and subject in an early issue of THE JOURNAL.

SCHOOLS FOR CRIMINALS.

A late issue of the *Philadelphia Record*, which, it will be remembered, is the newspaper which exposed the notorious "Dr. Buchanan," contained some startling disclosures of gross mismanagement and brutality in the management of the schools or asylums for soldiers' orphans in the State of Pennsylvania. These reports have been confirmed by an investigation conducted by the committee of the Grand Army of the Republic, and by the Governor of Pennsylvania in person. There are at present eighteen such institutions in Pennsylvania, the number of orphans in them being about 2000, ranging in age from four to sixteen years. While the State has no property interest in the schools, it pays annually $150 for each child ordered into them. It is evident from the report of the committee that those who managed the

schools did so with an eye only to the possible profits to be derived.

At scarcely any of the eighteen schools and homes was there a satisfactory condition of affairs, while the management of those at Mount Joy and Mercer is disgraceful. The disgusting details of the interior arrangements of the "schools" at Mount Joy, visited by Governor Patterson on March 8, show that the "school syndicate" have made a good speculation in the orphan-farming business, while the orphans have fared similarly to the children in charge of Mr. Squeers. About 250 boys and girls are incarcerated in the place at Mount Joy. The domitories were found to be cramped, foul and almost air-tight. The bed-linen was washed by the orphans, when washed at all. The clothing of the children was filthy, ragged, and infested with vermin. The managers, evidently familiar with Oliver Twist, "abated not one rag in Dodger's coat." In the so-called lavatory the bath-tub was an old pickle-barrel. Those of the large boys who cared to perform ablutions with such uninviting accessories crowded into the "bath-tub" two or three at a time, to the exclusion of the smaller boys.

The medical department of this establishment was presided over by the "school greaser." Cutaneous diseases and sore eyes were common, and twenty or more of the boys were constantly under the care of the juvenile medical officer, an over-grown lad, who, with a brush, "painted his patients with three kinds of salve—one for sore heads, a second for body sores, and a third for what he called 'the each.'" The supply of clean towels was limited to *one* a day for *forty* boys, and the girls were no better supplied. The orphans did most of their own washing, ironing and baking. The "play-room," for use on cold and rainy days, was "a foul dungeon of a boiler-room, with mouldy walls and damp, dirty floors, where the light of day never penetrated." We have been unable to learn anything as to the death-rate in this monstrously mismanaged institution, and it is entirely probable that any such information would be grudgingly furnished, if at all, by the managers. Nor are there any facts before us which show what becomes of these children when they are old enough to be emancipated from these schools for criminals—for such they must be. We do not know what subjects are taught in these schools, but a list of what is not taught might be easily given. Uncleanliness of body is inconsistent with bodily health or moral cleanliness. It would be no matter for surprise should the majority of these children become criminals; but it is to be hoped that every effort will be made to correct the present abuses and repair the damage already done.

SOCIETY PROCEEDINGS.

CHICAGO GYNÆCOLOGICAL SOCIETY.

LXIII Meeting, Friday Evening, Feb. 19, 1886.

THE PRESIDENT, DANIEL T. NELSON, M.D., IN THE CHAIR.

W. W. JAGGARD, M.D., EDITOR.

DR. A. REEVES JACKSON, opened the adjourned discussion of the treatment of pelvic abscess by reading a paper entitled

LAPAROTOMY FOR PELVIC ABSCESS.

Owing to Dr. Jackson's absence, the paper was read by the Secretary.

At the December meeting of this Society, a discussion arose upon the subject of pelvic abscess and its treatment. It was based upon the report of a case by Dr. H. T. Byford, which had been treated by favoring discharge of the pus by way of the rectum, and the placing within the abscess-cavity a portion of sulphate of copper to promote granulation. The discussion seemed unfinished, and was withal of so interesting a character, that I have thought well to reopen it by the relation of the following case. Whether the operation performed in the treatment of the case should be termed a laparotomy will depend upon what signficance we attach to the term. Upon this point opinions will doubtless differ.

If we understand by the world laparotomy, the opening of the abdominal cavity in its largest sense, the term is here correctly used; but if, on the other hand, we mean the opening of the abdomen for the relief of *an encysted intraperitoneal abscess non-adherent to the abdominal wall*, the term would not be properly applicable, for here there was complete adhesion, and, possibly, in the course of time the abscess might have pointed and opened in that direction, although I do not believe that such result would have occurred. Without active interference I think the disease would have resulted in death from pyæmia in a very few days.

On March 9, 1885, I visited Anna N., in consultation with Dr. Louis Braun, of this city. She was 24 years old, had been married six years, and had one child 18 months old. On February 1—five and a half weeks prior to my visit—she had miscarried, producing a fœtus four months old. A few days after that event, Dr. Braun found the patient suffering from symptoms of pelvic inflammation, which had since continued, with varying severity. He informed me that the pelvic swelling, which he detected on examination, appeared to involve all the periuterine structures, but to a greater extent on the right side; that during the past few days, however, it had seemed greater on the left side. From the onset of the attack the pulse had been rapid, and the temperature elevated—the former ranging from 110 to 130, and the latter being persistently over 102° F., reaching on one occasion, 104° F. Pain had been severe, but controllable by morphia. The appetite had failed utterly and the stomach finally rejected all food. At the time of my visit, the patient was pale, extremely

emaciated, and her visage showed marks of prolonged suffering.

On examination, I found on the left side of and behind the uterus, a swelling as large as a medium-sized orange, with rather indistinct outlines. Its lower portion was in a plane with, or somewhat below, the *os uteri*, and bimanually its upper margin could be felt extending above the fundus, which was pushed strongly to the right. Both uterus and tumor were immovable. The latter had a slightly elastic feeling in some places, although I was unable to detect any certain fluctuation through the vagina, rectum or hypogastrium. Through the posterior vaginal wall, at a point about an inch above the lower portion of the swelling, I fancied I received a sensation of bogginess, and this, taken in connection with the history of the case, gave me the belief that pus was present. Accordingly, I thrust a curved trocar and canula into the swelling by way of the vagina to the depth of about two inches, with no other result than the emission of a few drops of blood. It was then concluded that the patient should have prolonged hot water vaginal douches daily, rectal feeding, and appropriate anodyne and tonic medicines.

On April 18, five weeks later, I saw the patient again, with Dr. Braun, who reported that after my former visit the symptoms had all become gradually ameliorated; the stomach resumed its functions, pain subsided, pulse and temperature became normal. No menstrual or other discharge had appeared. This improved condition had continued until two days before, when, without apparent cause, the patient had a chill, followed by rapid pulse, high temperature, pelvic pain and irritability of the bladder.

Under anæsthesia I examined the abdominal and pelvic organs. The pelvic swelling had undergone no marked change, except that it seemed to have increased in an upward direction, extending now to a point about an inch above the *symphysis pubis*. At this place I thought I detected obscure fluctuation. The swelling as felt *per vaginam* was hard at every accessible point. All operative measures were declined by the patient and her friends, and the treatment advised consisted in the administration of morphia and quinine, and peptonized milk for diet.

April 19, the patient was much worse. The pelvic pain was controlled only by large doses of morphia given hypodermically, and the stomach retained almost nothing. The pulse was 130, temperature 102° F. It was decided that laparotomy should be performed the following day.

April 20. There were present as assistants Drs. Steele, Braun, Sterl, Dickerson and Mascheck. A spray of carbolized water had been kept playing in the room for several hours. The patient was etherized, and the bladder emptied by catheter. She was the thinnest person I ever saw placed upon an operating table. Immediately before the taking of ether her pulse was 124, temperature, 103° F. The hair of the pubis was shaven off, and the skin of the abdomen washed with soap and carbolized water. An incision three inches long, ending below at the upper portion of the *mons veneris*, was made in the middle line of the hypogastrium. Deepening the cut, I came upon the peritoneum, which, however, could not be separated from the parts beneath. Proceeding inward through dense structures the knife suddenly entered an abscess cavity, which at once gave exit to a stream of pus to the amount of two or three ounces. Passing my finger through the opening, I found that the cavity extended downward, behind and to the left of the uterus, about three inches. The abscess walls proper could not be accurately defined. The inflammatory processes had matted together the upper part of the uterus, the left broad ligament, tube and ovary. The cavity was washed out, and a rubber drainage tube passed to the lower end, the outer portion of the tube being stitched to the edge of the wound at its lower extremity. The remainder of the wound was closed with sutures, and dressed in the usual manner.

The night following the operation the patient slept fairly without an opiate.

When I saw her the next day she had taken milk and lime-water with relish; her pulse was 108, and temperature 100 1–5° F. In brief, the relief of the symptoms was immediate, and the recovery uninterrupted. Pus continued to discharge for more than six weeks in constantly diminishing quantity. The tube was then removed. Menstruation appeared July 20, and has been regular since. I examined the patient September 25. The uterus was still in a position of right lateroversion, but movable in a slight degree. The parts about the left broad ligament were thickened, and somewhat tender. An irregularly shaped mass occupied Douglas's space, and extended upward and to the left. The patient had gained greatly in weight, was ruddy, and doing her own housework.

In a letter dated December 29, she states, "I have no pain, and feel better than I have for four or five years."

Dr. Jackson appended the following note from Mr. Lawson Tait:

7 THE CRESCENT, BIRMINGHAM, Jan. 4, 1886.

My Dear Sir: I have performed now thirty-two operations for pelvic abscess, in every one of which a cure has resulted. Yours very truly,

LAWSON TAIT.

DR. CHRISTIAN FENGER said: Before entering into the discussion of the paper which has been read here this evening, I wish to remark that I came here under the impression that the entire subject of suppurative, pelvic inflammation was to be dealt with; I now see the subject is limited to the treatment of pelvic abscess by laparotomy. The operation performed in Dr. Jackson's case I should not call a laparotomy at all, but simply an oncotomy. An abscess was opened, and the operation does not differ materially from the opening of a deep-seated abscess in any other region of the body, *e. g.*, in an extremity. As I understand the term laparotomy, and I am not aware that it is ever used otherwise, it means that section of the abdominal parietes is followed by an operation, performed within the peritoneal cavity. If the wall of an abscess situated in an abdominal organ has become adherent to the visceral surface of the abdominal parietes, the peritoneal cavity is of necessity obliterated to the extent to which adhesions

have formed. An incision made over such adhesions does not open the peritoneal cavity, and consequently the operation cannot be spoken of as a laparotomy. In the paper which I published on "Laparotomy for Periuterine Abscess," it was distinctly stated that the only way by which it seemed possible to get at the abscess was by opening the peritoneal cavity. It is also mentioned that omentum and intestines were found between the walls of the abscess and the walls of the abdomen.

Concerning the etiology of pelvic abscess, I should like to call attention to the literature of the subject. Sänger, whose statements regarding etiology I have found to be the most complete, says that one out of nine of all gynecological affections is of gonorrhœic character. He further says that fifty per centum of these are diseases of the uterine appendages; although, of course, any part of the genital tract may be primarily invaded. In the Fallopian tubes he finds that disease most often has its principal focus, where it begins and whence it spreads. He distinguishes six kinds of salpingitis: (1), septic, puerperal and non-puerperal; (2), tuberculous; (3), syphilitic; (4), actinomycotic; (5), gonorrhœic; (6), a mixed form. The gonorrhœic is the most common form of the disease, and it produces the most severe cases of pelvic inflammation. It has not as yet been proven that the gonococci of Neisser can, of themselves, produce abscesses; but destruction of the surface of the mucous membrane is sufficient; an entrance is thus given to the septic, pus microbes, the *staphylococcus aureus* and *albus* and the *streptococcus pyogenes*, which are probably always present.

The invasion having taken place, we must ask ourselves by what channel does the inflammation travel? Where should we expect finally to find an abscess in case one should form? The Fellows will remember the beautiful experiments of Bitas, Koenig, Schlesinger; experiments which about three years ago I repeated in the dead-house of the Cook County Hospital, although the purpose I had in view at that time was a different one. These gentlemen injected, by means of fine canulæ, fluids, such as colored glue, into the periuterine tissues of puerperal and non-puerperal bodies. Koenig found (*a*) that fluids, injected in the region around the *fundus uteri* and uterine portion of the Fallopian tubes, first pass upwards into the iliac fossa to reach the crest of the ilium, then downwards towards Poupart's ligament, and finally into the *pelvis minor* or true pelvis; (*b*) fluids injected into the periuterine tissues, in the neighborhood of the internal os, first fill the extraperitoneal tissue of the *pelvis minor*, then follow the round ligament as far as Poupart's ligament and ascend in a backward direction into the iliac fossa; (*c*) that when the injection is made near the lower portion of the posterior surface of the uterus, the fluid first flows into the *cul-de-sac* of Douglas, and thence rises into the iliac fossa. Schlesinger, although in the main agreeing with Koenig, differs with him in the following two points: He says (*a*) when fluid is injected into the neighborhood of the *fundus uteri*, it first passes into the iliac fossa, but thence it does not descend into the true pelvis, as Koenig observed, but it ascends, running up the anterior abdominal wall; (*b*) from the broad ligament the fluid finds its way into the iliac fossa and thence upwards towards the kidney, running in the mesentery of either the ascending or descending colon. Schlesinger further makes the interesting statement that his pericervical injections filled the pericervical tissues, but that they never produced a tumor which could be felt above the *symphysis pubis*. As far as my experience goes, the results of these experiments correspond well with the clinical facts. The puerperal abscesses which I have opened were situated, two over the crest of the ilium, one on Poupart's ligament, and one on the anterior abdominal wall, about three inches above the ligament.

As before mentioned, about three years ago I made similar experiments; the fluid I employed was milk. My object, at the time, was to ascertain the exact relative position of such an artificial exudate, representing an abscess, with regard to one of the broad ligaments. I wanted to see for myself what difficulties I must be prepared to encounter in uniting the walls of a pelvic abscess, after having opened it, to the edges of the abdominal wound. As might have been expected, I found the difficulties of the operation to vary partly with the size of the exudate and partly with the degree of tension of the abdominal parietes. On the whole, the matter seemed simpler to me than I had *a priori* imagined.

Whether in cases of pelvic inflammations and abscesses laparotomy should be done or not, is a question of comparatively recent date, it being but little older than five years. As I have already said in my paper on "Periuterine Abscess," the operation is always to be regarded as a last resort, and should never be thought of in cases in which the abscess can with safety be reached in any other way, which, of course, includes opening it through the rectum. Lawson Tait, of Birmingham, and Martin, of Berlin, were the first who attempted to prevent the terrible contingencies of pelvic inflammations by attacking the disease at its original seat; Lawson Tait removed the suppurating uterine appendages, Martin operated for suppurating periuterine hæmatocele. Tait operated for a suppurating hæmatoma of the right Fallopian tube (peritonitis) in 1878, and he removed both tubes for pyosalpinx and an ovary for abscess in 1885. In 1885 Martin performed laparotomy in three cases of intraperitoneal hæmatoma, *i. e.*, retrouterine hæmatocele. He opened the peritoneal cavity, incised the sac, and evacuated the blood and pus; he then drained into the vagina, through the pouch of Douglas, and closed the opening he had made into the sac from the peritoneal cavity by sutures. In the discussion following the reading of Martin's paper, Kaltenbach opposed Martin's operation, and pleaded for an extraperitoneal operation, reaching the abscess either from above Poupart's ligament, or, as Hegar recommended, from the ischiorectal fossa. In 1880, Feldman, of Göttingen, published an operation for double pyosalpinx. In 1882, Baumgärtner published a case of hæmatocele in which Martin's operation had been successfully performed. These more or less sporadic operations called the at-

tention of the profession to the subject, and already during the following year, 1883, upwards of fifty or sixty cases were reported in which laparotomy was resorted to for the cure of pelvic inflammations. Aside from the forty-six cases which Lawson Tait published in his book, "Diseases of the Ovaries," he reported seven more. T. Gaillard Thomas reported five cases; Zeiss, Thornton, Baer and Proschownick, each one. In 1884, America was represented by fifteen cases; Stone, 1; Lee, 4; Lusk, 1; Martin, of Chicago, 1; Goodell, 2; Jones, 1; Thomas, 1; Dawson, 1; Polk, 3. In England we have thirty-five cases: Tait, 15, 7 of pelvic abscess; McDonald, 2; Lediard, 1; Chapman, 1; Savage, 9, 8 of pelvic peritonitis and 1 of hæmatocele; Malin, 7. In Germany, twenty-two cases were reported: Martin, 8 of suppurating hæmatocele; Gusserow, 7, in 4 of which the sac was stitched to the abdominal wound; Sänger, 5; Schröder, 1; Quetsch, 1.

It is evident that the operation rapidly gained ground, and that laparotomy has come to occupy a prominent place in the treatment of pelvic inflammations and abscesses. It may be objected that as yet the indications for the operation are not as clearly defined as we might wish them to be; in answer to this, we can only say that the operation is new, and that we must consider the importance of the subject the guaranty of progress in the right direction.

I wish to add a few words about the subject as it is modified in cases in which the periuterine abscess communicates with the rectum or some other part of the intestines. My remarks will have reference to the discussion of my paper on "Chronic Periuterine Abscess," the discussion of to-night being but a continuation of that broken off at our recent meeting for want of time. My paper was read before this Society in May, 1885. I will refer as well to the discussion of Dr. H. T. Byford's paper on "Pelvic Abscess," read here December 18, 1885.

When a communication exists between an abscess and the intestinal tract, evacuation of the pus into the bowel is sometimes followed by spontaneous recovery. As a rule, however, such a condition is extremely dangerous, for the abscess cavity is constantly being infected with septic material from the intestine. Péan, in his "*Diagnostique et Traitement des Tumeurs de l'Abdomen et du Bassin*," T. 11, p. 155, writes that a periuterine abscess may open into the cæcum, colon or rectum; that if a periuterine abscess opens into the intestine, bladder or uterus, septic infection will not fail to produce its symptoms and may speedily prove fatal. This statement may be a little too broad. Schröder, in his "*Krankheiten der Weiblichen Geschlechtsorgane*," Leipzig, 1880, says that when the abscess has broken into the gut or bladder we have to deal with a grave condition, as it is difficult or impossible to reach the abscess from the vagina. At that time, in 1880, he had not thought of the practicability of laparotomy in such cases. When the abscess has evacuated itself into the rectum, he considers it less difficult to get access to it, and he advises cutting through the posterior *cul-de-sac* of the vagina, and dissecting upwards between the uterus and the rectum. Emmet writes that when an abscess opens into the rectum, the case is very much complicated by septic infection through the fæces. The quotations given are sufficient for us to conclude that, when there is communication between a periuterine abscess and the rectum, the patient is in great and constant danger of dying from septic infection, and that, therefore, an operation should be done, if possible, to provide free drainage of the abscess. In discussing my paper, Dr. W. H. Byford said that he was opposed to the line of treatment suggested by me, *i. e.*, laparotomy; that the *sphincter ani* should be dilated or incised, the communication between the abscess cavity and rectum should be dilated with the finger, a steel dilator or the knife, the cavity of the abscess scraped, washed out, and drainage effected *per rectum*.

Aside from the old, now justly abandoned, puncture of a retro-uterine abscess *per rectum*, Dr. Byford's method of attacking such an abscess is to me entirely new. I have nowhere, in the course of my reading, met with a similar suggestion. If the abscess communicate with the intestine at a point beyond the rectum, a rectal operation is of course out of the question. If the opening into the rectum lies three inches or more above the anus, dilatation is hardly practicable. Such openings are often narrow and tortuous, the neighboring organs are immovable, and even if we divide the sphincter and the retrorectal tissues, we are obliged to work in the dark, for it is difficult or impossible to draw such an opening well down into view. The gentlemen present who have extirpated a carcinoma of the rectum, will appreciate the difficulties of operating high up in the gut.

But above all, I must earnestly warn you against adopting Dr. Byford's plan of employing in this region a knife for the purpose of dilating the opening of an abscess. Working here with a knife, we always run the risk of opening the peritoneal cavity, and of dividing large vessels which are bound in the wall of the sac, as I once demonstrated in the walls of an abscess, situated in a broad ligament. The large uterine vessels may be found anywhere, and if wounded, it is next to impossible to ligature them securely.

In a relatively small number of cases the abscess into the rectum near the anus; in these, dilatation may be tried, and it may even effect a cure, as we learn from Dr. H. T. Byford's case. However, we must have heard of more than one case before we can judge of the value of this method of treatment. Being somewhat enthusiastic over his rectal method, Dr. Byford disposes of laparotomy by saying, "The treatment by abdominal section cannot for a moment be entertained, for at least two reasons," of which the first one is that it is necessarily followed by a recto-abdominal fistula, which is incapable of being promptly cured, and is apt to become an unfailing source of systemic infection. Of the numerous examples we have, I need but mention the perityphlitic abscesses to show that an intestino-abdominal fistula does not contraindicate the evacuation of the abscess. We operate to save life, whatever may become of the fistula afterwards; besides, these fistulæ do frequently

close. In the third case referred to in my paper, it closed in two months. The closure of a cœcal fistula is a common occurrence. The explanation is not far to seek. Whenever an abscess breaks into the gut, the condition of the abscess necessitates such an outlet for the pus. When the abscess is drained through a counter-opening in the abdominal wall or the vagina, and thus transformed into a fistula, the necessity for emptying its contents into the bowel no longer exists, the opening has become useless, and it gradually contracts. A fistula in itself is no source of infection. We never hear, for example, of a primary local tuberculosis originating in a fistulous tract. An anal fistula, when tuberculous, is always preceded by a local tuberculosis.

Dr. Byford, further on, criticises my cases in particular, remarking that to operate as does Lawson Tait, before the abscess has discharged, and then treat antiseptically, is an entirely different matter. All I have to say to this is, that the doctor has entirely misunderstood Lawson Tait. A letter I had the pleasure of receiving from Mr. Tait one month after I had published my cases, begins, "I have just read your extremely interesting articles in the *Annals of Surgery*." I shall now pass the letter around to the Fellows of the Society. In his second letter to me, Mr. Tait says: "Concerning your operations for pelvic abscess, I quite agree with you. Opening the abdomen is a very much more satisfactory way of dealing with these cases than any other." Dr. H. T. Byford's further remarks on my cases I shall pass by in silence, as I do not think their discussion is in order before the Chicago Gynæcological Society.

Dr. W. W. Jaggard begged permission to submit an extract of a letter from Dr. Paul F. Mundé, received about the 15th of February. Dr. Mundé's large experience in the treatment of pelvic abscess was well known to the Fellows of the Society. Dr. Mundé writes: "I do not agree with Dr. Byford's rectal treatment, as a rule, and certainly have not in my quite extensive experience found true laparotomy required to evacuate and drain a pelvic abscess. I mean opening the peritoneal cavity.

"Neither has my experience been that of Dr. Dudley, who says that the mortality from abscess opening into the rectum, is great. I have seen only one case that I thought must die, in which there was a spontaneous rectal perforation."

Dr. Henry T. Byford: A few years ago Sir James Y. Simpson invented the operation of division of the cervix for uterine flexures. Almost all gynecologists began performing it, and in a short time had done more harm than good with it. Only a few years since Dr. T. A. Emmet invented the operation of trachelorrhaphy. While justly maintaining that it is an exceedingly valuable operation in proper cases, he has recently stated that it may have done more harm than good. A short time ago, Lawson Tait invented a method of treating pelvic abscess by laparotomy, and surgeons are resorting to it with a certain degree of success. The method is gaining favor, and bids fair to be employed with disastrous frequency, and possibly do more harm than good.

In endeavoring to fix the limits of the usefulness of laparotomy for pelvic abscess, we must go beyond the recorded experience of the laparotomists, for the records are not yet all in. I understand that Tait opens the abdominal cavity only in those cases which cannot be reached from below.

Dr. Fenger remarked, parenthetically: He (Tait) does not operate through the rectum. He performs laparotomy when he cannot open through the vagina.

Dr. Byford, continuing: Then we may say that abscesses like the one reported (which point above) should be opened by a simple incision, without entering the abdominal cavity; and those which point in the vagina should be opened and treated through the vagina. Now the question is, should those which point in the rectum be opened and treated through the rectum? What I claim is, that the procedure has not been thoroughly tested by the profession. As has already been stated in this Society by Dr. Wm. H. Byford, we can, by thoroughly stretching the sphincter of the anus, get into almost any abscess which is truly pelvic in its nature, and points, or opens, in the lower four or five inches of the rectum. We can dilate the opening, and then enlarge it with the fingers, without the use of any cutting instruments, against which objection has just been made. The danger of hæmorrhage from the wounding of blood-vessels is certainly very much less than the dangers in operating by laparotomy. There must be danger connected with any operation, but in the one I am speaking of it is reduced to the minimum. The entrance of fæces is of minor importance, for in the presence of perfect drainage and antiseptic irrigations, they do not remain in the cavity, and do not prevent it from filling in with granulations from the top and sides, and contracting and healing. Therefore dilatation *per rectum* should be first tried; and if any cases, after trial, cannot be thus successfully treated, laparotomy, or some other substitute, should be considered. Dr. Fenger quotes, and then criticises, my arguments against laparotomy, without mentioning that I was only referring to abscesses that could be reached through the rectum. With regard to recto-abdominal fistula, I must still maintain that the abscess will close up and get well more readily with one opening into the rectum, properly made or enlarged, than if such a fistula exist in which the rectal outlet has not been enlarged. Gases and fæces will almost invariably pass through and keep the abdominal end of the fistula open, and will lodge in septic pockets, or sinuses, resulting from the inadequacy of the opening at the rectal end. If we close such a fistula above, we have the unfavorable conditions of the original abscess, and must still practice dilatation per rectum. Martin's method of instituting perfect drainage through the vagina, and then closing the abdominal opening, would undoubtedly be sound in principle, were it not that an operation through the vagina should take precedence when practicable; and when not, a single opening from above must be regarded as fulfilling the requirements, as is proved by the experience of Tait and others. Hence Martin's method must eventually be relegated to the exceptional procedures.

I do not wish the Society to understand that I do not believe in laparotomy for pelvic abscess, but that, being popular and new, it is apt to be resorted to unnecessarily and unjustifiably. The remarkable success of Tait should not be allowed to mislead us. His mastery of *technique* and fertility of resource in abdominal surgery, justifies him in assuming risks which others may not.

DR. EDMUND ANDREWS: It seems to me that the usefulness of the operation in proper cases is reasonably certain, but that we must be careful not to incur the risks of laparotomy when safer methods are available. It will broaden our views somewhat, if we recollect that an abscess in the cellular tissue about the uterus does not differ materially in nature, principles of treatment, nor results, from abscesses in the cellular tissue in other parts of the pelvis and abdomen. One set of laws governs them all, both in pathology and treatment. A point to be remembered is, that many cases recover spontaneously in early stages, contrary to the statements of some eminent men. A professional gynecologist or surgeon, whose patients are attracted to him from long distances on account of his reputation, gets a class of cases, because of their long standing and obstinate character. He has to combat the same tendency to error of judgment in one respect which besets the mind of a pathologist, whose conclusions are too exclusively drawn from the dead-house; that is to say, neither of them sees the numerous cases which recover under ordinary treatment, and therefore do not come before them. Recoveries from abscesses in the cellular tissue in all parts of the abdomen and pelvis are common, though they are apt to be very slow.

I recall two cases, attended by well known physicians in this city, which recovered from such abscesses after suffering about a year. These abscesses discharged through the rectum. I have, perhaps, been somewhat slow in the treatment of these cases. For example, a retrouterine abscess was brought to me from a distant state. It periodically discharged into the rectum above the reach of the finger. The patient arrived in Chicago in fair general health. Directly after her arrival, the discharges grew smaller in quantity, with longer intervals of time between, and she continued to progress in that way. Improving constantly in strength and activity, she began to make excursions and long visits to friends in neighboring States, and, in short, enjoyed life so thoroughly that I deemed a laparotomy not justifiable so long as she progressed so well towards recovery without it. I presume she got tired of my dilatory plan. At any rate, after some months of improvement she ceased to report herself for periodic examination, and I lost sight of the case. I have a case now on hand in a more debilitated condition. She is confined to her bed the greater part of the time. I expected to operate many weeks ago, but soon after I took charge of the case she showed signs of improvement, which led me to postpone the laparotomy to see what would occur. The discharges, which were from a point high up in the rectum, grew less in quantity and further apart in time. The temperature went down to the normal standard and remained there, the tumor about the uterus diminished in size, and nearly two months have now elapsed since the last small discharge of pus. The patient's vigor is slowly returning. Under such conditions it is not certain that any pus cavity remains. I deem it my duty to wait until the presence of such a collection of pus is reasonably certain before subjecting the patient to the perils of laparotomy. Not long ago I had the opportunity to make a post-mortem examination in a case of circumuterine abscess. The abscess had formed several years ago, after a difficult parturition. I saw the patient in consultation a few times during the last weeks of life. The pus was discharged, partly by the rectum and partly through a fistula midway between the *symphysis pubis* and the umbilicus. She had been subjected twice to some surgical operation, whose exact nature I did not learn. The operations were not laparotomies. Having received no benefit, the patient was determined that no more surgery should be tried on her.

After some weeks she died of asthenia, and I was allowed a limited autopsy. The fistula above the pubes, after passing through the integuments, led downward and to the right, and at a point which seemed to be the right external inguinal ring it entered the inguinal canal and followed the round ligament into the pelvis. Here it became more spacious, but exceedingly crooked and complicated, winding irregularly backward until it opened into the upper part of the rectum. All the viscera in the vicinity were glued together in a mass by old inflammatory deposits. There was no large abscess cavity at any one point, but still there was a flattened pocket some three inches long, and an inch or more in width, lying behind the rectum in the hollow of the sacrum. It contained a little pus and fæces. This pocket might have been safely opened from below, working up outside the posterior surface of the rectum, had it been possible to ascertain its existence. I do not see how it could have been reached by laparotomy. The anterior fistula might have been benefited by freely slitting up the inguinal canal. I feel compelled to differ with my friend Dr. Henry T. Byford in one point. He suggests very naturally that Tait's operation, performed after the abscess cavity has opened into the rectum, would make a complete intestinal fistula, which it might be impossible to heal. This thought is natural, and I confess I would think the same thing myself, had not an extensive observation upon fæcal fistulæ shown me the reverse. Experience teaches that an abscess cavity opening into an intestine and filled with putrid pus and fæces, is very reluctant to heal so long as it is not freely drained and disinfected; but if it is widely opened, so as to make and maintain the shortest and straightest possible route from the opening in the cut to the external air, and if it be kept well cleansed and disinfected, fresh granulations will spring up, the orifice will contract and the fistula will heal, provided there is no stricture in the intestine below. This fact, or law, is very important, and applies equally to fæcal and urinary fistulæ, as I have verified by an abundant experience. A striking case in point occurs to me at this moment. An eminent physician on the South Side requested

me to take charge of one of his patients, a lady who seemed to have an anomalous hernia, and was sinking under a suppurative discharge from the bowels. On examination I found her confined to bed, and rapidly approaching fatal exhaustion. There were several evacuations daily of mingled pus and fæces from the rectum. The left hip was found prominent over the whole gluteal region. The tumor fluctuated on palpation, was resonant on percussion, and gave a succussion on coughing. At times it gurgled under pressure. I opened it very slowly and carefully, fearing to find an intestine there. After passing through the atrophied gluteus maximus, I entered a broad cavity containing neither intestine nor omentum, but filled with pus and fæces. This cavity being emptied and washed out, was easily traced up to the sciatic notch, where it entered the pelvis by an orifice of moderate size. I now ripped the cavity open for nearly its whole length and kept it cleansed. Vigorous granulations sprang up at once and the sac healed up rapidly and permanently. The patient seemed relieved of a great depressing influence, and rebounded at once toward health. She became plump and rosy, and rapidly regained her full strength.

Dr. F. E. Waxham presented for examination a

FEEDING BOTTLE FOR USE IN CASES OF INTUBATION OF THE LARYNX.

The feeding bottle consists of an ordinary nursing flask, with a rubber cork, with a small vent through which a tube passes to the bottom of the bottle. To this tube is attached another leading to the bulb of a Davidson's syringe, and this in turn is attached to a small-sized œsophageal tube. In using this apparatus the gag is placed between the jaws, the tube introduced into the œsophagus, and the contents of the bottle quickly introduced by means of the bulb.

Many patients, especially young infants, do not take sufficient nourishment after intubation has been performed, on account of the coughing produced by the trickling of the liquid into the trachea. This apparatus obviates this difficulty.

FOREIGN CORRESPONDENCE

LETTER FROM BRAZIL.

(SPECIAL CORRESPONDENCE.)

Yellow Fever—A Brazilian Pasteur — Treatment and Prophylaxis of Yellow Fever by Inoculation of the Attenuated "Cryptococus Xanthogenicus" — Beri-beri, its Etiology and Genesis—Dr. Moncorvo and the "Polyclinica Geral"—Aneurism of the Subclavian.

The medical world will soon wake up to the fact that scientific research is not confined to the great European centres, and that a "Koch" or a "Pasteur" is quite as likely to turn up in the new as the old world. Brazil is already putting in her claim for a share of attention. Dr. Domingos José Freire, the results of whose studies on yellow fever have been going the rounds of the medical journals, has been called the Brazilian Pasteur, and well deserves the title. His recent work on the "Doctrine Microbiènne de la Fièvre Jaune," is a monument of honest, painstaking labor in a very difficult field, extending over a period of several years; it is a work of 630 pages, written in the simple, direct style of your true scientist, and accompanied by elaborately executed plates, illustrating the various steps of the work which led to the discovery of the "Cryptococus Xanthogenicus," with carefully prepared tables of the hospital and laboratory experiments, by which he established a causal relation between his new found microbe and the yellow fever.

In a recent pamphlet he gives the net results of his 6000 inoculations of the pure culture, carefully recorded and kept track of, when practicable. So far, none of them have died of yellow fever, while more than four hundred persons *not inoculated*, inhabiting the same neighborhood, have succumbed to the disease. These are ugly figures for the anti microbists. As a matter of course, he meets with a great deal of adverse criticism and opposition among his colleagues in Rio. It is the old story, "A prophet is not without honor save in his own country." People who live beyond the radius of personal prejudice, however, recognize the significance of these facts. The comparative death rate from yellow fever for the last three years is: 1883, 1336; 1884, 618; 1885, 374. The part of the total mortality of 1885 credited to yellow fever is 3.6 per cent., against 16.2 per cent. in some of the bad years.

In a recent communication from Dr. Freire he claims, in his own words, that: "La *prophylaxie* est un fait deja acquis, je ne hésite pas à l'affirmer et ne cesserai de le confirmer de plus en plus. Ouant à la *thérapeutique*, les observations suivante nous inspirent les plus belles et les plus flatteuses espérances." Following this are the details of four cases of undoubted yellow fever, treated by him, after Pasteur's method, with the attenuated yellow fever microbe, by injecting a gramme of the liquid culture into the region of the deltoid. He also reports three cases treated in the same way, in his hospital, by the late Charles Browne,—seven cases in all, with seven recoveries! In each case there was a marked amelioration within twenty-four hours. In one case only was a second injection necessary.

The present season bids fair to afford the learned Professor ample opportunities for pursuing his studies. The intense heat, scarcity of water, and general bad sanitary condition of Rio favor the development of an epidemic. The daily increasing death rate from yellow fever is already beginning to give serious concern. Dr. Freire's report of this season's work in the fever districts will be looked for with unusual interest.

Beri-beri is now, and has been for a year or two, ravaging the whole coast-line of Brazil lying within the tropics, and attracts more attention than even yellow fever; its per centage of deaths reaches in some localities the appalling figure of 74.50 per cent. of all attacked, and the total mortality of the coast is *treble that of yellow fever*. The beri-beri, or *barbiers of Brazil*, differs widely from the disease bear

ing the same name in India, and described by Morehead, Aiken, and others, yet it preserves a significant number of the leading features to establish its identity. Of the three types—the paralytic, the œdematous, and the mixed—about 67 per cent. are of the paralytic. I saw a great many cases along the coast last July, among them some of the so-called "galloping" cases, where the patient succumbs in a few hours. The symptoms are, at first glance, those of a myelitis. A great many papers have been written on the disease, the most valuable and complete being that of Dr. J. F. de Silva Lima, of Bahia, giving a full history of the disease from its first appearance in Brazil. Unfortunately, this work was written several years ago, and does not embrace the later observations. Dr. J. B. de Lacerda, the author of the permanganate of potash treatment for snake bite, and who, by the way, is one of the ablest microscopists and most indefatigable investigators in the Empire, has published two works on beri-beri, and claims to have identified it with the "*horse-pest*" of the island of Marajo, and to have discovered the "microphyto beriberigeno." Whether Dr. Lacerda succeeds in making his microphyte stick or not, he has written a very valuable book and thrown a good deal of light upon an important subject.

The profession is indebted to Dr. Moncorvo, of the Rio Polyclinic, for several valuable monographs on diseases of children. "The Frequency of Dilatation of the Stomach in Children;" "Temperature of the Abdominal in Enteritis of Children;" "Whooping Cough, and the use of Muriate of Cocaine in its Treatment;" "Resorcin in the Treatment of Whooping Cough," etc.

Prof. Saboia, of the Imperial Academy of Medicine, recently operated upon an aneurism of the right subclavian, by electro-puncture, after the manner of Prof. Ciniselli. Fourteen elements were used, and after thirty-five minutes the tumor became hard and ceased to pulsate.

It will be seen by the foregoing that medicine is alive in Brazil, and likely to be heard from in the future. H. M. L.

São Paulo, Brazil, Feb. 15, 1886.

DOMESTIC CORRESPONDENCE

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Dr. Flint—The Discussion on Glycosuria—Jambol and Matzoon in Diabetes—Cremation not a Necessary Sanitary Measure—The Meeting of the Fifth District Branch—Dr. Charles H. Phelps—Dr. Ezekiel Wade—Curious Hallucination.

At the meeting of the Academy of Medicine held March 18, when the death of ex-President Austin Flint was announced, the President, Dr. A. Jacobi, stated that he would claim for himself the privilege of pronouncing before the Academy the eulogy on his illustrious predecessor in the office. Dr. Stephen Smith was appointed to prepare a memoir of the late Dr. Alfred C. Post.

The subject of the evening's discussion, which was introduced by the Section on Theory and Practice of Medicine, was Glycosuria. The first question propounded was, *The Significance of Small Quantities of Sugar in the Urine*, and it cannot be said that a great deal of light was thrown upon the subject by the speakers participating in the debate; although considerable information was elicited in regard to the difficulty of detecting small amounts of sugar and the best methods for accomplishing this. Unfortunately, both the gentlemen who were expected to read papers upon this subject, Dr. E. C. Seguin and Dr. L. Weber, were unable to be present, and the discussion was entirely an extemporaneous one. Dr. T. A. McBride said that while sugar was not infrequently found in the urine in connection with phthisis, pleurisy, cardiac disease, cerebral hæmorrhage, certain of the psychoses, and other grave forms of disease, it was recognized at the present day that in moderate amount sugar might itself be the cause of various nervous troubles, such as insomnia, so-called neurasthenia, paræsthesia, certain pareses and even temporary hemiplegia. The quantity of sugar present in the urine in these cases varies from a trace to 2½ per cent; though as large a proportion as the latter figure was rare. On the whole, he felt obliged to confess that he was now somewhat at a loss to say what was really diabetes and what was not.

Dr. George B. Fowler called attention to the fact that sugar was often to be found in the urine of those taking sweets freely, particularly on an empty stomach, and said that patients in whom there was slight glycosuria, with more or less defective digestion, would frequently recover very quickly under a properly regulated diet.

Dr. Wm. H. Draper remarked that he had ceased to attach much importance to the occasional occurrence of very small quantities of sugar in the urine, for the reason explained by Dr. Fowler. He found it very often, particularly in the lithæmic state, in which there were seen the evidences of suboxidation. When crystalline uric acid and the urates in large amount were present in the urine, sugar was very apt to be found also. All were to be attributed alike, he thought, to defective metabolism, and the treatment which rendered the urine normal in other respects, would also remove the sugar from it. As Dr. McBride had remarked, it was difficult to say where diabetes really commenced. Sugar was not infrequently found in the urine of patients passing not only imperfectly assimilated hydrocarbons, but also nitrogenous food; and therefore sugar was often to be regarded simply as an indication of dyspepsia. He did not think one could distinguish any difference in the cases of nervous disturbance in connection with lithæmia, whether sugar was formed in the urine or not. Bence Jones had long ago remarked that the "sour disease," or gout, was very closely allied to the "sweet disease," or diabetes mellitus, and had pointed out the important fact that gout and diabetes very frequently existed in the same families, and even in the same individual.

The President, Dr. A. Jacobi, said that in a great many persons, at times sugar was found in the urine

in small quantities which could be detected by the ordinary tests. When he was a student he had been taught that diabetes was a very rare disease, and was always fatal. It was true, indeed, that the cases in which the specific gravity ranges from 1040 to 1060 were rare; but cases in which it ranges from 1017 to 1035 were very frequent, and they were by no means always of a mild character. Still, quite a large number of such patients lived a long time, and some got entirely well. A considerable proportion of these cases are in gouty individuals beyond middle life. When their general heath was good, very little sugar was to be found in the urine; but when they began to fatten up and took little exercise, the quantity might be sufficient to produce pruritus vulvæ in the case of females. When such patients contracted other diseases, however, and especially pulmonary affections, they were in the greatest possible danger, and, as a rule, they would not survive an attack of pneumonia. Having mentioned the case of four brothers, all of whom were or had been the subjects of diabetes, he remarked that this history showed that in a large number of cases the presence of sugar in the urine indicated defective assimilation. If this condition was not appropriately treated, it might result in persistent diabetes and perhaps finally terminate in pulmonary disease. He would say, therefore, that sugar in small quantities did not signify much, as long as a good general state of health was maintained; but it might be the source of great danger when other disease set in.

In the course of the discussion of the second topic, which was the *Treatment of Diabetes*, Dr. Cauldwell related his experience with the recently discovered so-called specific, jambol. He had prescribed it in four well-marked cases of the disease, in each of which the patient was passing more than 100 ounces of urine, while in all the specific gravity of the urine was above 1035. All the patients were treated alike, and, in addition to the use of the drug, was kept on anti-diabetic diet, with a moderate allowance of toasted bread. Five grains of the powdered jambol seed were given three times a day. In the first case the effect was apparently quite remarkable. Within two months the patient gained twelve pounds in weight, and the sugar disappeared entirely from the urine. For a month past it has remained absent. In the second case, on the other hand, no effect whatever was produced by the remedy, as far as could be perceived; but in the third and fourth cases the results were beneficial. In one the daily quantity af urine passed was reduced to eighty-two ounces, with a specific gravity of 1030, and in the other to fifty ounces, with a specific gravity of 1028; while in the latter case the patient had gained ten pounds in weight. In addition, Dr. Cauldwell referred to two cases which had been under the care of Drs. Keyes and Alexander, in one of which the improvement had been very satisfactory; while in the other there was no improvement whatever. In four cases out of six, therefore, the use of jambol had been followed by improvement, and in two it had proved a failure.

Dr. Draper remarked that, excluding the dietetic treatment, it might be truly said that the treatment of diabetes was as purely empirical as our knowledge of its pathology was speculative. There was no trustworthy evidence that drugs alone, without the more or less complete restriction of saccharine and starchy food, were of any service; and while medicinal agents were undeniably useful as adjuvants, his experience led him to believe more and more that the dietetic and hygienic management constituted the essential factor in the successful treatment of this affection. The three medicines which had proved of the most service in his hands were codeia, sulphide of calcium, and the alkaline carbonates. His attention had first been called to Dr. N. C. Husted, who himself recovered from diabetes under the use of this drug, which he originally took for the relief of furuncles. It was followed with good results in a considerable number of cases, especially in gouty subjects, and he believed that it enabled the diabetic to indulge in a greater variety of food than he could otherwise do. The alkaline carbonates he had also proved very valuable; and, believing, as he did, that both gout and diabetes are not infrequently due to defective metabolism, he thought that it was a rational treatment to stimulate oxidation.

Dr. Dadirrian, who has practiced for some time in Constantinople, spoke of the good effects of matzoon, or fermented milk-food, in which the sugar is converted into lactic acid, and which is used largely throughout the East; and Dr. Baruch strongly advocated the efficacy of judicious active and passive exercise in diabetes, the amount of exercise being regulated by the strength of the patient.

At the last meeting of the New York Society of Medical Jurisprudence and State Medicine, its venerable President, the distinguished surgeon, Dr. Frank H. Hamilton, read a paper on *Cremation*, in which he took a somewhat different view of the subject from what is entertained by many in the profession at the present day, but one which it would perhaps be well for some enthusiasts to ponder over before committing themselves to such rash and uncalled-for measures as have recently been proposed and discussed. This conservative paper of Dr. Hamilton's was called out by a proposition made by a member of the Society of Medical Jurisprudence at a preceding meeting to ask the Legislature of the State of New York to enact a law making compulsory the cremation of persons who have died of certain infectious diseases, and of those who are buried at the public expense, and it was entitled "*Cremation of Human Bodies Not a Necessary Sanitary Measure.*" He said that he could not approve of the proposed legislation, or of any legislation making it obligatory that the body of any person who has died of any disease, or under any circumstances whatever, shall be cremated; and for the following reasons:

First. The danger to health and life from the present mode of burial, when the inhumation has been properly made, has, by the advocates of cremation, been greatly over-estimated, if, indeed, it can be said to exist at all.

Second. Cremation removes effectually one of the most important means of detecting certain crimes.

Third. The general sentiment of the community

in which we live is opposed to cremation; and, in view of the facts above stated, it would be unnecessary, unwise, and unjust to impose cremation by legal enactments.

The first of these, he thought, was perhaps the only one at present requiring extended discussion, and to this he especially devoted his attention. In speaking of the comparative innocuousness of the emanations from abattoirs, he said: The mortuary and general sanitary statistics of Chicago will probably not show that it is any more unhealthy to-day than it was before it became the slaughter-house of the world; nor has it been said that Cincinnati has suffered in its sanitary reputation by the immense growth of its industry in the slaughter and packing of hogs for home and foreign markets. He did not wish to be misunderstood, however. He did not intend to say that decaying animal matter does not give out noxious gases, and when these are present in the atmosphere in certain quantities and under certain circumstances that they do not cause sickness and death; but only that, in the light of the observations which he had made in reference to the emanations from decaying human and other animal bodies, the dangers from these sources have, in the popular mind, been greatly exaggerated.

In treating of the immunity from infection of those constantly working in dissecting-rooms, he quoted the opinion of Duchatelet, after a thorough investigation of the subject (an opinion that was concurred in by Lallemand, Dessault, Dubois, Dupuytren, Boyer, Andral, Lawrence, of London, and Warren, of Boston), that it was "an error to suppose that the air of a neighborhood is ever contaminated—so as to induce disease—by the emanations from dissecting-rooms, or that the students ever suffer from breathing the impure air of those places." After referring to the various dissecting-rooms of this city he said: "I am informed, I think authoritatively, that, according to some recent experiments, the air of the autopsy rooms, and of the other rooms attached to the dead-house (at Bellevue) contained fewer septic germs than the most favored ward in Bellevue Hospital, namely, the Osborne ward, which is a new, outlying, one-story brick pavilion, and which is considered a model of sanitary construction, arrangement and police."

In considering to what extent health and life are endangered by emanations from animal bodies buried beneath the surface of the earth, he stated that chemistry and experience have alike demonstrated that the escaping gases, and the fluid or solid organic matters which sometimes find exit with them, rapidly undergo changes by entering into new combinations when brought into contact with the earth. This was illustrated in the familiar experience with the so-called "earth-closet," and was to the scientist a well-known fact. If many bodies were deposited at the same time in a great vault, or in superficial trenches, it would be easy to understand how the gases and organic matter might, for a time, penetrate the soil unchanged, and in a sufficient amount to render the surrounding atmosphere and the adjacent water unwholesome; although after the great battles of modern times, where many thousands have been thus buried in a single day, no accounts have reached us of sickness or of pestilence thereby induced. In the case, however, of our civic and rural burial grounds, within which bodies are deposited one by one, at considerable intervals of time and at great depth, it would seem impossible, in the light of the accumulated testimony now presented, that any harm should come to the living.

Having remarked that nearly all of the testimony adduced by the cremationists, if not all of it, was drawn from the assumed noxious emanations from certain burial grounds in Europe or Asia, and thus placed beyond the reach of critical investigation, he said it was, in fact, a just ground of complaint that the American advocates of cremation as a hygienic measure do not draw their illustration from examples supplied by our own country. In order that his position might be fairly understood, he thought it well to say that he was defending the mode of burial usually practiced in this country, namely, from four to six feet below the surface of the earth, as in itself a complete sanitary measure, and as rendering cremation unnecessary. New Orleans, and all other cities where the dead cannot be buried to a sufficient depth beneath the surface, might do well to consider the alternative of cremation; but this admission, he thought, supplied no argument against inhumation where it can be properly done. Any who would feel interested in following out Dr. Hamilton's argument in full will find the paper in the April number of *Gaillard's Medical Journal.*

A successful special meeting, for scientific purposes, of the Fifth District Branch of the New York State Medical Association, was held at Yonkers, on the Hudson, on March 23. The gathering took place in the Common Council Chamber, which is situated in the ancient Phillipse manor house, one of the oldest and finest colonial buildings in the country, the bi-centennial of which was celebrated with elaborate and appropriate ceremonies in October, 1882. The programme of scientific papers, which has been published in THE JOURNAL, was carried out, and several memoirs of deceased Fellows were read. Much interest was shown in the proceedings, and it was decided to have another special meeting of the Branch in June next. This will be held at Kingston, Ulster County, and it is probable that a delightful excursion to the neighboring Catskills will be arranged in connection with it.

The Governor of the State has made a very satisfactory appointment in nominating as Health Officer of the Port Dr. Charles H. Phelps, who has already acceptably filled a number of medical positions of importance, and is at present one of the attending surgeons to Bellevue Hospital, of the Medical Board of which, as well as of the Board of Police Surgeons, he is President. He also has a large practice, and is much liked personally. One of the three Quarantine Commissioners whom Governor Hill nominated at the same time is also a physician, Dr. John H. Douglas, who has become widely known all over the country by his connection with the case of General Grant.

Dr. Ezekiel Mulford Wade, who died at his residence in the town of Watervliet, New York, in the

early part of March, was a grandson of Edward Wade, a Revolutionary patriot who took part in the battle of Bunker Hill. His father, James Wade, M.D., was quite a noted physician, his practice extending into Albany, Schenectady, and Saratoga counties; and his reputation is said to have been established during a notable epidemic of so-called typho-pneumonia, in which nearly all other physicians in the region lost almost every patient within twenty-four hours after the bleeding then resorted to as a routine practice at the beginning of the treatment. By avoiding bleeding, and by the use of supporting measures, he saved nearly all his cases.

The other evening a woman apparently about 45 years of age presented herself at police headquarters and asked for protection, who was suffering under a somewhat unusual hallucination. She stated that she was followed by relatives who wanted to administer to her hypodermic injections of morphia, and though she had thus far been able to baffle their efforts, she feared that she would not be able to do so any longer. P. B. P.

"THE FUTURE OF THE AMERICAN MEDICAL ASSOCIATION."

To the Editor of the Journal:

Dear Sir: The Philadelphia *Medical News* of February 27, under the above caption, published an article from the *Nashville Medical and Surgical Journal*, of February 1886, which reads as follows:

"The meeting of the American Medical Association at St. Louis, Mo., in May next, will be a most important one. Surely, every physician who holds the honor of his profession dear, should either go himself, or interest himself in sending such representatives as are honorable and pure, and free from all selfish motives for self-advancement and preferment, and fully alive to the important issues that will be discussed at this meeting. The topic of the International Medical Congress will be the absorbing question for discussion. *Of late years this Association has appeared to degenerate into a body merely medico-political*, and it is time something should be done to elevate it to a proper standard and make it what the British Medical Association is to the profession in England, representative and national. *Political intrigue and trickery* have too long held sway in this Association, and it is time the profession should see to it, that it be no *longer thus degraded*, and be brought back to the place it occupied in its palmiest days. From year to year the meetings have become less and less important in a scientific point of view, and it is time every true physician should individually strive to change its downward course. If some change is not soon effected, the Association will cease to exist, and the profession will turn its attention to the separate special Associations, which are all now in a flourishing condition. We hope, therefore, that all who can, will make an effort to attend the coming meeting."

Surely no intelligent physician can read the above quotation and be at a loss to divine both its origin and animus. The deep solicitude manifested for the well-being of the Association and the terms of affection are covered by a veil too thin to conceal the venom rankling in the bosoms of disappointed schemers and plotters to overthrow, or disgrace, or humiliate the American Medical Association—an Association dear to the great overwhelming mass of the medical profession, and should be, to every true and honorable physician in this land and country. It is written somewhere in the Holy Scriptures, "that a man's (worst) enemies are the men of his own household." It does seem to me that in this unnecessary and unreasonable antagonism to the Association, and I may say tirade of slander, this saying is literally fulfilled. It is humiliating to our profession to read such untrue and venomous statements as are contained in the foregoing quotation; and we are wonderstruck that any medical journal having any pretentions to honorable professional pride and respectability, should reproduce it without denouncing it as a spiteful calumny. When did the American Medical Association degenerate into a "body merely medico-political?" And when did "political intrigue and trickery" commence, which the splenic writer affirms have too long held sway in this Association?

The truth of the matter is that, until the last meeting of the Association, we never heard of any such changes, neither a hint of such suspicion. Up to that time the Association was held to be a body of honorable men intent only to work for the good of the profession—to elevate the standard of medicine and to maintain the true honor and dignity of medical science. But at the meeting in New Orleans it did come about that a few ambitious schemers, (I will not say political intriguers) made their appearance (by proxy) desiring to get control of the Association, and to use it in their own preferment and distinction, to the exclusion of members fully their peers in every essential quality of medical and scientific culture; and because their schemes were resisted and frustrated as selfish and sectional, and the Association held true to its honor and representative national character, these discomfited schemers have resorted to every misrepresentation to injure the Association, and to make the meeting of the International Medical Congress in this country in 1887 a failure. Can any fair minded man conceive of any course more despicable on the part of physicians claiming to be honorable and the leaders of medical thought?

Now, in good faith, what was the real offence given by the Association at the meeting in New Orleans? It did not displace any one of the seven the Committee appointed at its meeting in Washington in 1884. It simply added others, enlarged the Committee to make it more representative of the entire medical profession of the United States, in whose name the Association had extended the invitation to the International Medical Congress, and to this Committee thus enlarged, the power was given to revise the work already done, and to perfect and complete every arrangement for the successful meeting of the Congress in Washington City in 1887. Was there "medico-political" trickery in the exercise of this clear and undoubted right? Was there anything in it that should have wounded the feelings and given offence to any honest medical worker, unselfishly labor-

ing for the advancement of true medical science and the good of the whole profession? It strikes me there was not; that the action taken, was open, frank and fair dealing, and absolutely required to keep the Association true to its representative character and the high and honorable standard of medical ethics, incorporated in its very being—the *lex non scripta* of every honorable medical man in this and every other civilized country.

But here is the point of friction, and the origin of this trouble. It is well known that a body of ambitious medical men and specialists in the City of New York, believing themselves to be superior to the American Medical Association, of which they were members, boldly undertook to set aside the Code of Ethics and proclaimed their right to hold professional consultations with irregular practitioners of medicine of every description. The National Association, as in duty bound after this revolutionary procedure, refused to admit their delegates, and this proper action of the Association was endorsed by every State Medical Society.[1] But, these eminent men of New York, justly honored for their high medical attainments, have assumed to stand at the head of the medical profession and to control and govern medical thought and action, and have used every opportunity and means ever since, to justify their antagonism to the Association. How well they succeeded, at least for a season, is shown in their capture of the Committee of Seven, the appointees and agents of the Association, and so controlling their action as to have themselves placed above the Association; and so adroitly laid their plans as to draw in the *Medical News* of Philadelphia, which, although professing to love the *Code of Ethics* and be a friend of the Association, has written and said more to injure and break down both, than all other medical journals combined, not excepting the two leading journals of New York, the open enemies of the Code of Ethics and the Association. The *Medical News*, not content with sowing the seeds of discord and strife among the physicians at home, has sedulously used its influence in foreign countries, there disseminating misrepresentations of our divisions, to prejudice the medical mind of all Europe against the Association, and thereby prevent a successful meeting of the International Congress, unless these ambitious schemers of New York and their allies can dominate the entire medical profession of this country, and use the Association to further their own personal preferment. The bitterness of the *Medical News* is further evinced in its eager hunt after and republishing of every disparaging paragraph and sentence that has appeared in the medical journals of the country whose editors have hoped to gain notoriety and greatness by aping the *News* and the New York journals in their abuse of the action of the Association, when, in fact, they have been outrageously misrepresenting the views of their readers and the medical sentiment of the country, much to their injury and the mortification of their friends.

We cordially and heartily appeal to the profession, and beg that they will send as delegates to the Association, in May, their very best men; men of culture, of broad conceptions and conservatism, and of mental and moral stamina; and that while every manly and honorable effort shall be honestly made to pacify and harmonize all of our dissensions, the honor and dignity, the authority and the National and representative character of the American Medical Association will be triumphantly sustained.

RICHARD H. DAY,
Ex-President Louisiana State Med. Soc.
Baton Rouge, La., March 7, 1886.

[1] Except the New York State Medical Society.

NECROLOGY.

ALEXANDER Y. P. GARNETT, JR., M.D.

The record left behind us when death comes is the heritage of our friends, and in part the legacy which belongs to society. Hence it is meet and proper that the good deeds, exemplary conduct and noble character of those who die should be transmitted to posterity as an example to follow and a career to emulate. Recognizing this truth, we are unwilling that the untimely death of Dr. Alexander Yelverton Peyton Garnett, Jr., which occurred on the 12th of March, 1886, in Washington, should receive only the brief mention of that event.

Dr. Garnett was born in Washington, on September 18, 1855, received his academic education at the institution of Mr. Charles B. Young, subsequently graduating in the old William and Mary College, of Virginia. He was always of delicate physique, and when but 17 years of age he was sent to Southern California, where he spent one year, returning home in apparent robust health. After being graduated at William and Mary, he commenced the study of medicine with his father, in Washington, and matriculated in the National Medical College, in Georgetown, D. C., from which he was graduated two years afterwards. He then entered the Medical Department of the University of New York, from which he graduated in the following year, and obtained a position in the Charity Hospital of New York. Returning home in 1885, he associated himself in the practice of his profession with his father. During the short period his health permitted him to engage in practice, he acquired a phenomenal popularity—courteous, tender, careful, and patient in dealing with his patients, he never failed to secure their confidence and esteem. In August he was taken with a severe attack of rheumatic fever, which at once developed a severe rheumatic carditis, involving the valves and resulting in dilatation. From that date his disease seemed to steadily progress, the distressing and fatal consequences following in rapid succession and terminating in his death on Friday, March 12.

In the capacity of Assistant Demonstrator to the National Medical College he had commenced a course which was destined, in the near future, to place him in the highest and most responsible positions. In all the relations of life, from his boyhood to the day of his death, he was universally admired and beloved. The multitude of letters of sympathy and condolence received by his family from all parts

of the country attest the wonderful power he possessed to make friends, and the wide-spread sympathy and respect shown by those who attended his funeral manifested the hold he had already taken upon the admiration and regard of his fellow-citizens in Washington. As an evidence of the high regard in which he was held by his fellow-associates in the Colleges and Hospital of New York, he received during his illness testimonials in flowers, and the most affectionate letters. Professor William H. Welch, of the Johns Hopkins University, thus speaks of him in a letter of condolence to his parents: "I wish to tell you my deep sympathy in your great affliction, and to express to you the sincere esteem and attachment which I had acquired for your son. I became well acquainted with him during the time he worked in my laboratory in New York. His amiable and manly character, his enthusiasm, and the marked ability which he showed in his studies with me led me to anticipate for him a useful and successful professional career."

At a special meeting of the Washington Obstetrical and Gynæcological Society, held on Friday, March 12, 1886, the following preamble and resolutions were unanimously adopted:

WHEREAS, This Society has learned of the death of Dr. A. Y. P. Garnett, Jr., who died at his residence in this city after a long and painful illness; therefore be it

Resolved, That in the death of Dr. Garnett, Jr., this Society has sustained the loss of a member who was distinguished for his exemplary conduct, his uniformly courteous and genial manners, and for his professional zeal and acquirements.

Resolved, That we most deeply sympathize with his sorrow-stricken family, and offer them this expression of our sincere condolence in their great bereavement.

SAMUEL S. ADAMS,
A. F. A. KING, *Pres't.* *Cor. Sec'y.*

At a meeting of the Medical Society of the District of Columbia, the following resolutions were adopted:

Inasmuch as it has pleased Almighty God to visit us again with affliction by removing from our midst Dr. A. Y. P. Garnett, Jr., who departed this life on the morning of March 12th, therefore

Resolved, That we hereby put upon record our profound sorrow at his untimely death, upon the very threshold of a professional career which gave promise of exceptional brilliancy and usefulness.

Resolved, That, as Fellows of the Society, we shall ever cherish an affectionate remembrance of his genial, kindly nature, and lofty, self denying character.

Resolved, That we tender to his stricken family our heart-felt sympathy and condolence in this their great bereavement, and that we attend his funeral in a body.

Resolved, That these resolutions be spread upon our records, published in the daily newspapers, and a copy thereof be transmitted to the family of the deceased.

THOMAS C. SMITH, M.D.,
Corresponding Secretary.

ASSOCIATION ITEMS.

AMERICAN MEDICAL ASSOCIATION.

The Thirty-seventh Annual Session will be held in St. Louis, Mo., on Tuesday, Wednesday, Thursday and Friday, May 4, 5, 6 and 7, commencing on Tuesday at 11 A.M.

The delegates shall receive their appointment from permanently organized State Medical Societies and such County and District Medical Societies *as are recognized by representation in their respective State Societies*, and from the Medical Department of the Army and Navy, and the Marine Hospital Service of the United States.

Each State, County, and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number: *Provided*, however, that the number of delegates for any particular State, territory, county, city or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association.

Secretaries of Medical Societies, as above designated, are earnestly requested to forward, *at once*, lists of their delegates.

Also, that the Permanent Secretary may be enabled to erase from the roll the names of those who have forfeited their membership, the Secretaries *are, by special resolution*, requested to send to him, annually, a corrected list of the membership of their respective Societies.

SECTIONS.

"The Chairman of the several Sections shall prepare and read, in the general sessions of the Association, papers on the advances and discoveries of the past year in the branches of science included in their respective Sections. . . ."—*By-Laws*, Article 11, Sec. 4.

Practice of Medicine, Materia, Medica and Physiology.—Dr. J. T. Whittaker, Cincinnati, Ohio, *Chairman*; Dr. B. L. Coleman, Lexington, Ky., *Secretary.*

Obstetrics and Diseases of Women and Children.—Dr. S. C. Gordon, Portland, Me., *Chairman*; Dr. J. F. Y. Paine, Galveston, Texas. *Secretary.*

Surgery and Anatomy.—Dr. Nicholas Senn, Milwaukee, Wis., *Chairman;* Dr. H. H. Mudd, St. Louis, Mo., *Secretary.*

State Medicine.—Dr. John H. Rauch, Springfield, Ill., *Chairman*; Dr. F. E. Daniel, Austin, Texas, *Secretary.*

Ophthalmology, Otology, Laryngology.—Dr. Eugene Smith, Detroit, Mich., *Chairman*; Dr. J. F. Fulton, St. Paul, Minn., *Secretary.*

Diseases of Children.—Dr. W. D. Haggard, Nashville, Tenn., *Chairman*; Dr. W. B. Lawrence, Batesville, Ark., *Secretary.*

Oral and Dental Surgery.—Dr. John S. Marshall, Chicago Ill., *Chairman*; Dr. A. E. Baldwin, Chicago, Ill., *Secretary.*

A member desiring to read a paper before a Section should forward the paper, or its *title* and *length*

(not to exceed twenty minutes in reading), to the Chairman of the Committee of Arrangements, at least one month before the meeting.—*By-Laws.*

Committee of Arrangements.—Dr. Le Grand Atwood, St. Louis, Missouri, *Chairman.*

AMENDMENTS TO BY-LAWS.

By Dr. Foster Pratt, Mich.—Each Section shall nominate its Chairman and Secretary—all other nominations to be made, as now, by the nominating Committee.

By Dr. I. N. Quimby, N. J.—Create a new Section, to be known as the Section on Medical Jurisprudence.

WM. B. ATKINSON, M.D.,
Permanent Secretary.
1400 Pine St., S. W. cor. Broad, Philadelphia.

RAILWAY FACILITIES TO THE ASSOCIATION MEETING.—The regular through trains of the Illinois Central Railroad from Chicago to St. Louis will afford excellent accommodations for delegates who wish to attend the meeting of the American Medical Association at St. Louis the first week in May. The night express, with Pullman sleeping cars, leaves Chicago at 8:30 P.M., and arrives in St. Louis at 7 A.M. The rates are full fare going and one-third for returning.

The rates on the Baltimore and Ohio Railway for those coming from the East and South-east are full fare coming and one-third fare returning.

MISCELLANEOUS.

QUARANTINE INSPECTIONS ON THE NORTHERN FRONTIER OF THE UNITED STATES.—Official information having been received that the small-pox, which recently prevailed as an epidemic in some of the provinces of the Dominion of Canada, is now under control, therefore the regulations issued October 10, 1885, for the maintenance of quarantine inspections on the Northern frontier of the United States, are hereby revoked.

JOHN B. HAMILTON,
Supervising Surgeon-General.

AT THE special meeting of the Fifth District Branch of the New York State Medical Association, held in Yonkers on Tuesday, March 23, 1886, it was unanimously resolved that this Branch express its feeling upon the death of the late Austin Flint, M.D., as embodied in the following report of its committee, Drs. A. L. Carroll and E. H. Squibb:

The Fifth District Branch of the New York State Medical Association desires to record its unfeigned grief at the decease of its most distinguished Fellow and Founder.

In the death of Austin Flint, M.D., LL.D., a loss has befallen the medical profession which will be sadly recognized as almost irreparable, not only in America, but throughout the civilized world. Few men of this generation have done so much to exalt the dignity of our chosen calling, and both at home and abroad, all who knew him conjoined with reverence for his intellectual power and scholarly attainments a sense of personal attachment. Whether as an exponent of scientific medicine or as an exemplar of professional integrity and private virtue, he stood conspicuous among the best of his contemporaries, and at the ending of a life without reproach, of a career lavish in benefactions to mankind and rich in well-merited honors, no enmity will slur his memory, no jealousy dispute his leadership.

J. G. PORTEOUS, M.D., *President.* E. H. SQUIBB, M.D., *Secretary.*

PALATABLE QUININE; REMARKABLE TOLERANCE.—DR. E. F. INGALS, of this city, recently ordered for a child two years of age fifteen tablets of quinine with chocolate, each containing one grain of quinine. One half of a tablet was to be taken three times a day. Shortly after the administration of the first dose the child secured the box and ate all the tablets, thinking it candy. No evil effects followed.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 20, 1886, TO MARCH 26, 1886.

Asst. Surgeon John J. Cochran, ordered for duty as Post Surgeon, Ft. Mason, Cal.

Asst. Surgeon A. S. Polhemus, ordered for duty at Presidio of San Francisco, Cal. (S. O. 18, Dept. Cal., March 15, 1886.)

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, DURING THE WEEK ENDING MARCH 27, 1886.

Martin, H. M., Surgeon, detached from "Independence" and ordered to the "St. Louis."

Guitéras, D. M., P. A. Surgeon, detached from Navy Yard, Pensacola, and wait orders.

Ross, J. W., Surgeon, detached from special duty at New York, and ordered to Pensacola.

Eckstein, H. C., Surgeon, detached from the "St. Louis" and placed on sick leave.

Means, V. C. B., Asst. Surgeon, detached from the "Vermont" and ordered to the "Shenandoah."

Beaumont, N. H., Surgeon, detached from the "Enterprise" and wait orders.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE TWO WEEKS ENDED MARCH 27, 1886.

Wyman, Walter, Surgeon, detailed as chairman of Board for physical examination officer Revenue Marine Service. March 27, 1886.

Sawtelle, H. W., Surgeon, granted leave of absence for thirty days. March 27, 1886.

Irwin, Fairfax, Passed Asst. Surgeon, granted leave of absence for seven days. March 22, 1886.

Ames, R. P. M., Passed Asst. Surgeon, detailed as recorder of Board for physical examination officer Revenue Marine Service. March 27, 1886.

White, J. H., Asst. Surgeon, granted leave of absence for three days. March 23, 1886.

Bailhache, P. H., Surgeon, detailed as chairman Board of Examiners. March 15, 1886.

Fessenden, C. S. D., Surgeon, detailed as member Board of Examiners. March 15, 1886.

Purviance, George, Surgeon, detailed as recorder Board of Examiners. March 15, 1886.